Council Chambers
62 Valentine Plains Road
Valentine Plains
Biloela Qld 4715

All Correspondence to
Chief Executive Officer
PO Box 412
Biloela Qld 4715

Phone 07 4992 9500
Fax 07 4992 3493
enquiries@banana.qld.gov.au
www.banana.qld.gov.au
ABN 85 946 116 646

Your Reference: 1735.DA1
Our Reference: CW: BS: jw: 18-12 (FID84763, MCU008-17/18, 15740-00000-000, ID1406097, ID1410786, OM004248)
Contact: Chris Welch

17 December 2018

Sarlou Quarry Pty Ltd
C/- Groundwork Plus
PO Box 1779
MILTON QLD 4064

Dear Sir/Madam

Decision Notice – Approval
(Given under section 63 of the Planning Act 2016)

Application Number: *MCU008-17/18*
Description: *Extractive Industry, Caretaker's Residence and Associated Environmental Activities*
Level of Assessment: *Impact Assessable*
Site Address: *1426 BELLDEEN DEFENCE ROAD, WOOLEIN*
Lot & Plan Details: *Lot 53 on FN149*

On 12 December 2018, at Council's Ordinary Meeting (OM004248), the above development application was approved in full subject to conditions. The conditions of this approval are set out in Attachment 1. These conditions are clearly identified to indicate whether the assessment manager or a concurrence agency imposed them.

1. Details of Approval

The following approval is given:

	Planning Regulation 2017 reference	Development Permit	Preliminary Approval
Making a Material Change of Use assessable under the planning scheme		☑	

2. Approved Plans

The approved plans and documents for this development approval are listed in the following table:

Plan/Document No	Plan/Document Name	Date
1735.013	Figure 6 - Quarry Conceptual Site Layout Plan	11.04.2018
1735.021A	Figure 7 – Example Site Office Layout	24.06.2016
1735.022A	Figure 8 – Example Workshop Layout	24.06.2016
1735.026	Figure 10 – Caretakers Residence	18.04.2018
1735_610_002_V1	Environmental Management Plan	March 2018

3. Further Development Permits

Please be advised that the following development permits are required to be obtained before the development can be carried out:

- Operational Works
- Building Works
- Plumbing & Drainage

4. Conflict with relevant instrument and reasons for the decision despite the conflict.

The assessment manager does not consider that the assessment manager's decision conflicts with a relevant instrument.

5. Submissions

There were properly made submissions about the application.

The name and address of the principal submitters for each properly made submission are as follows:

Name of Principal Submitter/s	Address

6. Referral Agencies

The referral agency for this application was:

Name of referral agency	Advice agency or concurrence agency	Referral Basis	Address
Chief Executive - Department of State Development, Infrastructure and Planning (DSDIP) - State Assessment Referral Agency (SARA)	Concurrence	Schedule 10, Part 5, Division 4, Table 2 Schedule 10, Part 6, Division 4, Subdivision 3, Table 1 Schedule 10, part 9, Division 4, Subdivision 1, Table 1 Schedule 10, Part 9, Division 4, Subdivision 2, Table 4	RockhamptonSARA@dsdmip.qld.gov.au Fitzroy & Central Region PO Box 113 ROCKHAMPTON QLD 4701

7. Currency Period for the Approval

This development approval will lapse at the end of the period set out in section 85 of the *Planning Act 2016.*

8. Statement of Reasons

Description of the development	The approved development is for an Extractive Industry, Caretaker's Residence and Associated Environmental Activities
Assessment Benchmarks	The approved development was assessed against the following benchmark: Rural Zone Code Extractive Industry Code Development Design Code Development Standards Code Economic Resources Overlays Code Agricultural Land Class Overlay Natural Disaster Overlay Code
Reasons for Decision	Rural Zone Code The proposal is consistent with all the Performance Outcomes. Extractive Industries Code The development achieves compliance with the balance of all acceptable outcomes, however conditions have been imposed to address Performance outcomes PO1 and PO2 to ensure compliance. Development Design Code The proposal complies with the relevant Performance Outcomes. Conditions have been impose to ensure compliance with PO12, PO13, PO16/PO18 and PO25. Development Standards Code The proposal seeks performance outcomes for most of the provisions under the code. Conditions have been imposed to ensure compliance with all relevant Performance Outcomes. Economic Resources Overlays Code The proposal complies with PO1 as the new use is located in such a manner that the productivity is sustained. Agricultural Land Class Overlay The approved development complies with all acceptable outcomes of the code. Natural Disaster Overlay Code The approved development complies with all acceptable outcomes of the code. Natural Disasters Overlay-Bushfire Prone Overlay The proposal is consistent with the relevant Performance Outcomes.

9. Appeal rights

The rights of an applicant to appeal to a tribunal or the Planning and Environment Court against a decision about a development application are set out in chapter 6, part 1 of the Planning Act 2016. For particular applications, there may also be a right to make an application for a declaration by a tribunal (see chapter 6, part 2 of the Planning Act 2016).

Appeal by an applicant

An applicant for a development application may appeal to the Planning and Environment Court against the following:

- the refusal of all or part of the development application
- a provision of the development approval
- the decision to give a preliminary approval when a development permit was applied for
- a deemed refusal of the development application.

An applicant may also have a right to appeal to the Development tribunal. For more information, see schedule 1 of the Planning Act 2016.

Appeal by a submitter

A submitter for a development application may appeal to the Planning and Environment Court against:

- any part of the development application for the development approval that required impact assessment
- a variation request.

The timeframes for starting an appeal in the Planning and Environment Court are set out in section 229 of the Planning Act 2016.

Attachment 2 is an extract from the Planning Act 2016 that sets down the applicant's appeal rights and the appeal rights of a submitter.

The Planning and Environment Court appeals database lists all the appeals lodged in the Planning and Environment Court since 15 March 2008, which the department has been notified of. It contains information about the appeal, including the appeal number, site address, local government area, and a copy of the appeal notice, including grounds for the appeal. The appeal database is an easy way for anyone to obtain information about an appeal or check if an appeal has been lodged for a specific development application or approval.

The appeal database is available at https://planning.dsdmip.qld.gov.au/planning/our-planning-system/dispute-resolution.

Should you require further assistance in relation to this matter, please do not hesitate to contact Council's Development Services section on (07) 4992 9500, quoting you application number of MCU008-17/18.

Yours Sincerely

Chris Welch
MANAGER ENVIRONMENT & PLANNING

CC All Referral Agencies (both advice and concurrence)

State Assessment and Referral Agency (SARA)
rockhamptonSARA@dilgp.qld.gov.au

Enc Attachment 1 – Part A Conditions imposed by the Assessment Manager
Attachment 1 – Part B Assessment Manager Notes
Attachment 1 – Part C Conditions imposed by Department of State Development, Manufacturing, Infrastructure and Planning
Attachment 2 – Appeal Rights
Attachment 3 – Approved Drawings
Attachment 4 – Environmental Obligations

MCU008-17/18 Attachment 1

Part A - Conditions imposed by the Assessment Manager

General

1. The Developer, their employees, agent, contractor or invitee is responsible for ensuring compliance with all conditions of this development approval prior to commencement of the use, unless otherwise stated within this development approval, maintain compliance for the duration of the approved use.

2. The proposed Material Change of Use is to be completed and carried out generally in accordance with the following approved plans and reports submitted with the development application, except where modified by conditions of this Development Approval –

Drawing Title	Prepared By	Date	Reference No.	Revision
Figure 6 - Quarry Conceptual Site Layout Plan	Groundwork Plus	11-04-2018	1735.013	4
Figure 7 – Example Site Office Layout	Groundwork Plus	24-06-2016	1735.021A	-
Figure 8 – Example Workshop Layout	Groundwork Plus	24-06-2016	1735.022A	-
Figure 10 – Caretakers Residence	-	18-04-2018	1735.026	-
Environmental Management Plan	Groundwork Plus	March 2018	1735_610_002_V1	1

3. Exercise the approval and complete all associated works, including any relocation or installation of services, at no cost to Council.

4. Alterations to public utilities, mains and services made necessary in connection with any works arising from this approval including works to restore and reinstate all roads are to be completed at no cost to Council.

5. The following further Development Permits must be obtained prior to commencement of any works associated with their purposes:
   Building Work;
   Plumbing and Drainage Work; and
   Operational Work

Approved Use

6. The approved use is *Extractive Industry* (Extracting and Screening up to 1,000,000 Tonnes in a Year) and *Caretaker's Residence.*

7. Hours of operation are permitted as follows:

   a) General operation 06:00 – 18:00 Monday to Friday; and
   b) Limited maintenance and loading activities 18:00 – 22:00 Monday to Friday.

   Advisory Note: Environmental Authority EA0001512 conditions when blasting is permitted (i.e. 09:00 – 15:00 Monday to Friday and 09:00 – 13:00 Saturdays).

Building Work

8. The applicant must obtain a development permit for building work associated with the new work approved by this development approval.

Plumbing and Drainage Works

9. All internal plumbing and drainage works must be designed and constructed in accordance with the approved plans, *Capricorn Municipal Development Guidelines*, *Water Supply (Safety and Reliability) Act 2008*, *Plumbing and Drainage Act 2002*, and Council's Plumbing and Drainage Policies and the provisions of a Development Permit for Plumbing and Drainage Works.

10. On-site sewage treatment and disposal must be provided in accordance with the *Queensland Plumbing and Wastewater Code* and Council's plumbing and drainage policies. The on-site sewage treatment and disposal area must not be located within an existing water course or conflict with separation distances as detailed in the *Queensland Plumbing and Wastewater Code*.

11. Adequate domestic and fire fighting protection must be provided to the development and must be certified by a hydraulic engineer or other suitably qualified person.

Road Work, Parking, Access and Haulage

12. The existing and proposed site accesses, as shown on approved 'Quarry Conceptual Site Layout Plan' (refer to Condition 2), must be designed and constructed in accordance the *Capricorn Municipal Development Guidelines* (Standard Drawing CMDG-R-040).

13. Construction of the accesses is to provide stormwater drainage, which accommodate a 50% AEP storm event.

14. The works required for the construction of the rural accesses are to proceed with minimal interruption to traffic and any necessary steps for the protection of traffic and the public during construction are to be undertaken at no cost to Council.

15. The proposed internal access roads for both the *Extractive industry* and *Caretaker's residence* are to be constructed to an all-weather access standard.

16. Contact is to be made with "Dial Before you Dig" before construction of any of the work commences to determine the location of any underground services adjoining the premises. Any damage to any services is to be repaired at no cost to Council.

17. Any damage to the existing road surface, services or furniture because of construction and operation is to be repaired to the pre-existing condition or better condition at no cost to Council.

18. All vehicles are only permitted to ingress/egress the approved development from Belldeen Defence Road at the approved access locations (refer to Condition 2).

19. All vehicles associated with the approved development are only permitted to ingress/egress the development site from Belldeen Defence Road via the Leichhardt Highway. No vehicles associated with the approved development are permitted at any time to ingress/egress the development site from Belldeen Defence Road via the Dawson Highway.

    Advisory Note: This will require all vehicles to only perform a left-in, right-out manoeuvre to/from the development site via Belldeen Defence Road.

20. Submit for approval by Council's delegate, a plan, prepared and certified by a Registered Professional Engineer of Queensland, showing what engineering works can be undertaken at the 'Site Entrance' (refer to Condition 2) to ensure vehicles associated with the approved use cannot make a right-in, left-out manoeuvre to Belldeen Defence Road.

21. Design and construct the works, endorsed by Council's delegate, shown in the plan to be approved by Council (refer to Condition 18). The works must be designed and constructed in accordance with the provisions of a Development Permit for Operational Work (Road Works/Access Works).

22. Signage is to be erected at both approved access locations, within the bounds of the development site, clearly visible by motorists when entering and leaving the development site, showing only left-in, right-out manoeuvre is permissible.

23. All vehicles must ingress and egress the development site in a forward gear.

24. Maintain the provision of adequate on-site car parking spaces necessary for the operation of the *Extractive industry* and *Caretaker's residence*.

Environmental

25. Maintain a record of all invasive flora and fauna found on site, including time, date, location and controls implemented.

26. Implement the Environmental Management Plans for each environmental interest contained in Section 3 of the approved Environmental Management Plan, prepared by Groundwork Plus (refer to Condition 2), to the extent the Management Plans do not conflict with the conditions imposed under Environmental Authority: EA0001512.

27. Council is to be made aware, in writing, within five (5) business days, in the instance a contingency plan needs to be enacted for any of the environmental interests listed in section 3 of the approved Environmental Management Plan (refer to Condition 2). The operator is required to outline to Council what measures are proposed as part of the contingency plan, and within a reasonable period, inform Council in writing of the outcome of the measures enacted.

28. Council is to be made aware, in writing, as soon as practicable, in the instance any breach of a condition in the Environmental Authority (EA0001512) occurs. Council is to be provided records including details of the breach and subsequent actions to be taken.

29. Prior to blasting occurring, the operator is required to seek approval from Council's delegate for a temporary road closure (unless otherwise agreed to in writing by Council's delegate) for that part of Belldeen Defence Road to which the extractive industry operation has frontage, or otherwise considered necessary by a suitably qualified person to ensure there is no potential that motorists or otherwise are at risk of being hit by projectile material.

30. At least 10 business days prior to blasting occurring, the operator is to notify residents of Belldeen Defence Road, and all adjoining landowners of the development site, via registered post, or otherwise agreed to by the landowner, the date and time of the blast, and in the instance a temporary road closure is required, the date and time and period of the temporary road closure.

31. Any lighting devices associated with the development, such as sensory lighting, must be positioned on the development site and shielded as not to cause glare or other nuisance to nearby residents or motorists. Night lighting must be designed, constructed and operated in accordance with *Australian Standard AS4282 "Control of the obtrusive effects of outdoor lighting".*

Stormwater Drainage

32. The stormwater drainage of the development is to be designed so that at the point of discharge to all downstream properties, including road reserves, there will be no material changes to the pre-development location, duration, frequency or concentration of overland stormwater flow.

33. Stormwater formerly flowing onto the site must not be diverted onto other properties.

34. All stormwater being discharged from the development site must meet the requirements of the *Capricorn Municipal Development Guidelines* and *Queensland Water Quality Guidelines 2009* (to the extent they do not conflict with conditions of the Environmental Authority: EA0001512):
    a. Contaminated water must not be directly or indirectly released from the premises onto the ground or into the groundwater.
    b. Releases to stormwater must not contain any visible evidence of oil/grease, scum or litter.

Erosion and Stormwater Control

35. An Erosion and Stormwater Control Management Plan prepared by a Registered Professional Engineer of Queensland in accordance with the *Capricorn Municipal Development Guidelines*, must be:
    a. Implemented, monitored and maintained for the duration of the works, and until all exposed soil areas are permanently stabilised (for example: turfed, hydro mulched, concreted, landscaped); and
    b. Available on-site for inspection by Council Officers whilst all works are being carried out.

Landscaping

36. Submit for approval by Council's delegate, a landscaping plan showing a 10 metre wide vegetated buffer along the development site's frontage to Belldeen Defence Road (i.e. from the 'Caretakers Residence Site Entrance' to the southern extent of the 'Indicative Quarry Area'). The landscaping plan must include:
    a. A list of plantings, the species to be used; and
    b. The location of the plantings.

37. The vegetation buffer must be sufficiently vegetated such that when fully mature, vegetation screens views from Belldeen Defence Road into the approved development.

38. The vegetation buffer must predominantly contain plant species that are native to Central Queensland due to their low dependency on water

39. The vegetation buffer must be subject to:
    a. A watering and maintenance plan during the establishment phase; and
    b. An ongoing maintenance and replanting program.

Potable Water Supply

40. Provision must be made of an adequate potable water supply system to cater for the needs of the approved use. Details on the proposed method of providing adequate water supply are to be submitted as part of a Development Application for Plumbing and Drainage Works.

Telecommunications and Electricity

41. Telecommunication must be supplied to the approved development in accordance with the standards and requirements of the relevant service provider.

MCU008-17/18 Attachment 1

Part B – Assessment Manager Notes

Assessment Manager Notes

A. Please note the advice surrounding the applicants 'Environmental Obligations' contained in an attachment to the Decision Notice.

B. The approved development must also comply with Council's current Local Laws under the Local Government Act 2009.

C. All works required pursuant to these conditions shall be undertaken and completed in accordance with Council's Standards (Capricorn Municipal Development Guidelines) at the Applicant's expense.

D. In carrying out the activity or works associated with the development, all reasonable and practical measures are to be taken to minimise releases and the likelihood of releases of contaminants to the environment, except as otherwise provided by the conditions of this development approval.

E. The applicant is responsible for ensuring Queensland Fire Services requirements are met with respect to this development which may include but not be limited to the installation/upgrade of holding tanks or pumps as necessary to meet flow and pressure requirements.

F. Building works are to comply with the *Building Act 1975*, the Building Code of Australia and other relevant authorities.

G. Failure to ensure ongoing compliance with the conditions of this Development Approval including conditions relating to the ongoing use of the premise, and the design and layout of the development may constitute an offence under the Planning Act.

H. Where further development is proposed it is the applicant's / developer's responsibility to ensure further approvals are sought as required by the Banana Planning Scheme.

I. Any works on public roads must be conducted in accordance with the Queensland Department of Transport and Main Roads, "Manual of Uniform Traffic Control Devises – Part 3".

J. Trap Gully Landfill is the only approved waste facility within the Banana Shire for the disposal of commercial waste. Fees apply to disposal at this facility, and the waste transporter must obtain credit approval or maintain an account with Council prior to disposal at the facility. No commercial waste is to be deposited at other Banana Shire landfills or transfer stations without prior written approval from Council.

K. It is an offence under the *Environmental Protection Regulation 2008* to fail to comply with signage or directions at a waste facility.

Cultural Heritage

L. This development approval does not authorise any activity that may harm Aboriginal cultural heritage. Under the Aboriginal Cultural Heritage Act 2003 you have a duty of care in relation to such heritage. Section 23(1) provides that, "A person who carries out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal cultural heritage".

M. Council does not warrant that the approved development avoids affecting Aboriginal cultural heritage. It may therefore be prudent for you to carry out searches, consultation, or a cultural heritage assessment to ascertain the presence or otherwise of Aboriginal cultural heritage. The Act and the associated duty of care guidelines explain your obligations in more detail and should be consulted before proceeding.

Declared Pests/Plants

N. The applicant/developer is responsible for ensuring that all declared plants are treated as required by the provisions of the Land Protection (Pest and Stock Route Management) Act 2002.

Attachment 2
Planning Act 2016 Extract on Appeal Rights

Part 1 Appeal rights

229 Appeals to tribunal or P&E Court

(1) Schedule 1 states–
(a) matters that may be appealed to–
(i) either a tribunal or the P&E Court; or
(ii) only a tribunal; or
(iii) only the P&E Court; and
(b) the person–
(i) who may appeal a matter (the appellant); and
(ii) who is a respondent in an appeal of the matter; and
(iii) who is a co-respondent in an appeal of the matter; and
(iv) who may elect to be a co-respondent in an appeal of the matter.

(2) An appellant may start an appeal within the appeal period.

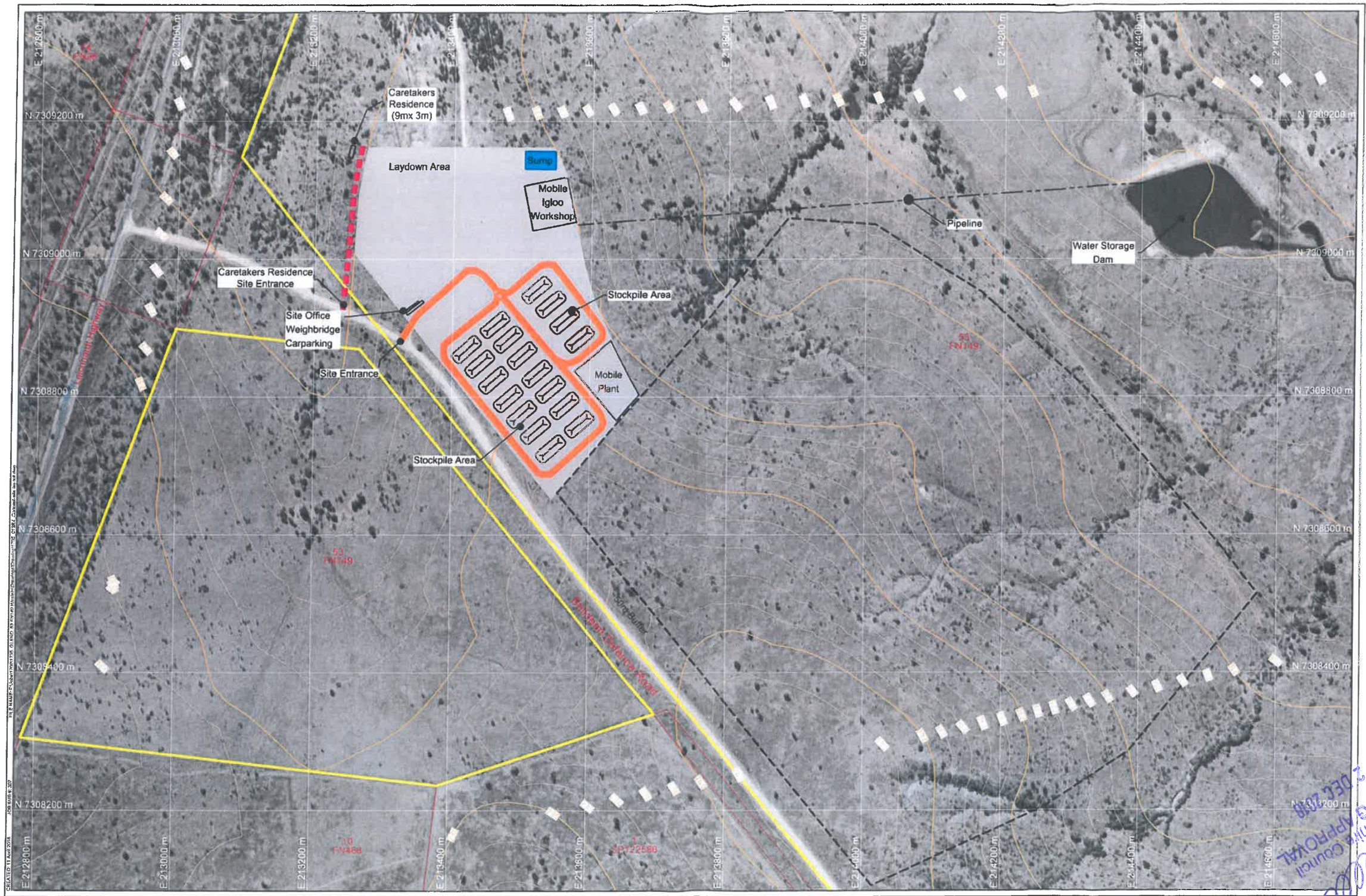
(3) The appeal period is–
(a) For an appeal by a building advisory agency–10 business days after a decision notice for the decision is given to the agency; or
(b) For an appeal against a deemed refusal–at any time after the deemed refusal happens; or
(c) for an appeal against a decision of the Minister, under chapter 7, part 4, to register premises or to renew the registration of premises–20 business days after a notice is published under section 269(3)(a) or (4); or
(d) for an appeal against an infrastructure charges notice–20 business days after the infrastructure charges notice is given to the person; or
(e) for an appeal about a deemed approval of a development application for which a decision notice has not been given–30 business days after the applicant gives the deemed approval notice to the assessment manager; or
(f) for any other appeal–20 business days after a notice of the decision for the matter, including an enforcement notice, is given to the person. Note– See the P&E Court Act for the court's power to extend the appeal period.

(4) Each respondent and co-respondent for an appeal may be heard in the appeal.

(5) If an appeal is only about a referral agency's response, the assessment manager may apply to the tribunal or P&E Court to withdraw from the appeal.

(6) To remove any doubt, it is declared that an appeal against an infrastructure charges notice must not be about–
(a) the adopted charge itself; or
(b) for a decision about an offset or refund–
(i) the establishment cost of trunk infrastructure identified in a LGIP; or
(ii) The cost of infrastructure decided using the method included in the local government's charges resolution.

Attachment 3
Approved Drawings



REV	DESCRIPTION	DATE	BY
2	Changed caretaker access, added pipeline	22/10/15	LT
3	Concrete Batching Plant Removed	24/05/18	JB
4	Caretakers residence relocated	11/04/18	MR

Data Sources:
Photography: Google Maps 2012, Image date: 2003-04-09
Topography: 10m Contours, © The State of Queensland (DERM) 2012
Cadastre:
Ecosystem:
Other:

Legend:
- Site Boundary
- Cadastral Boundary
- Easement Boundary
- Indicative Quarry Area
- Site Access
- Access to Caretakers Residence

PROJECT: Sarlou Quarry

CLIENT: Sarlou Quarry Pty Ltd

TITLE: Figure 6 - Quarry Conceptual Site Layout Plan
Note: Aerial photograph is not orthorectified

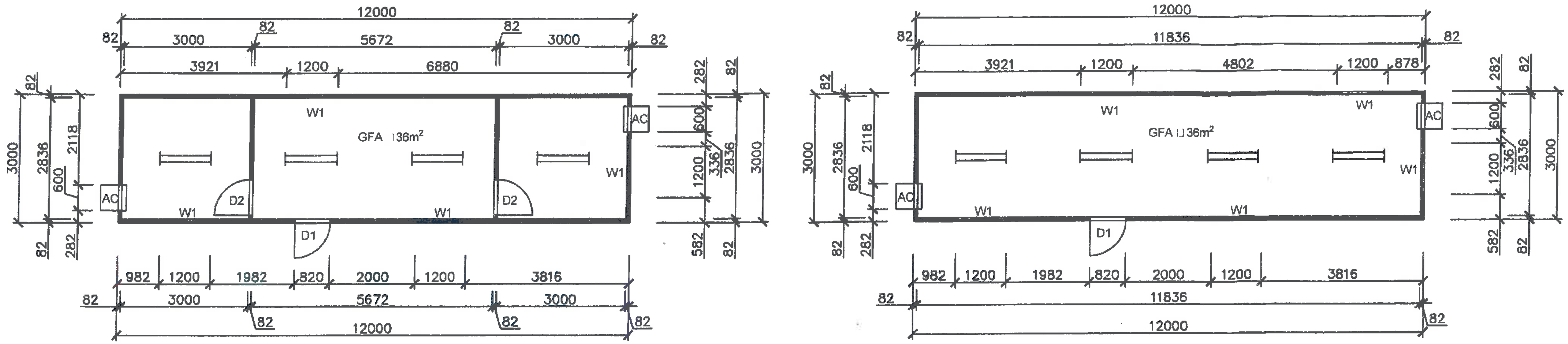
GROUNDWORK plus
PH: +61 7 3871 0411
www.groundwork.com.au

SCALE: 1:5,000 When Printed On A3 (0 — 100)
DRAWING NUMBER: 1735.013
REVISION: 4
DATE: 11 April 2018 DRAWN: MR
PRINTED: 11 April 2018 CHECKED: SL
DATUM: HORIZONTAL / VERTICAL / ZONE: MGA / AHD / 56

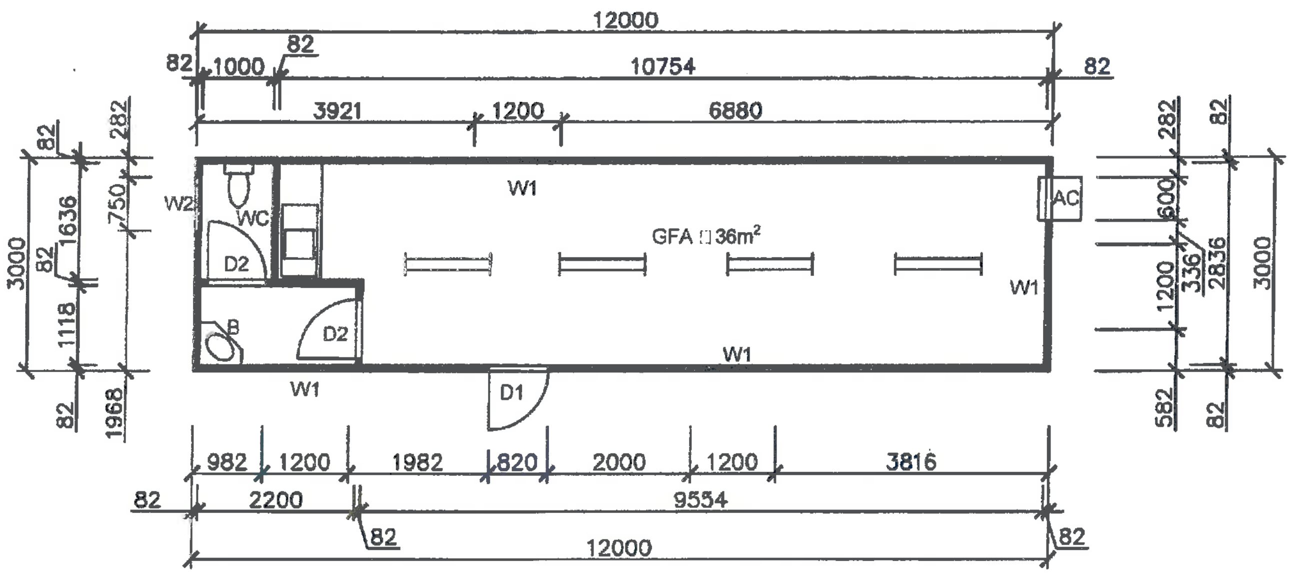
CREATED: 11 April 2018 JOB SIZE: A3

Plan - Configuration 1

Plan - Configuration 3

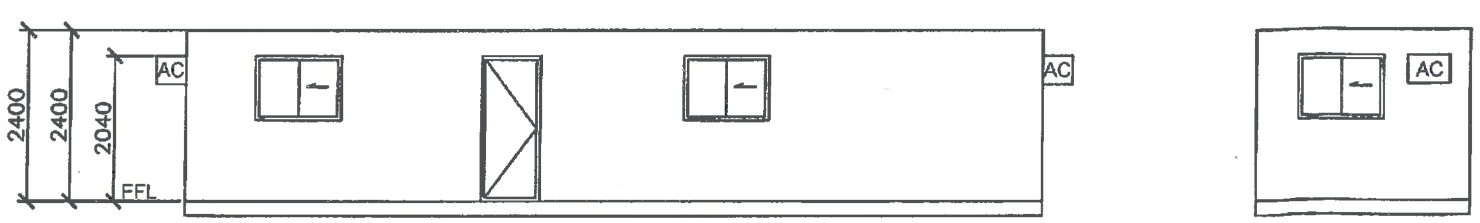


Plan - Configuration 2



Front Elevation

Side Elevation



Banana Shire Council
PLANNING APPROVAL
12 DEC 2018

LEGEND:

D1	2040 x 820 METAL CLAD EXTERNAL DOOR
D2	2040 x 820 INTERNAL DOOR
W1	900 x 1200 SLIDING GLASS WINDOW
W2	350 x 750 SLIDING GLASS WINDOW
AC	AIR CONDITIONING UNIT
WC	WC SUITE
B	HANDBASIN
⊢⊣	DOUBLE FLUORESCENT LIGHT

REV	DESCRIPTION	DATE	BY

Data Sources: Photography: Topography: Cadastre: Ecosystem: Other:

PROJECT: Sarlou Quarry

CLIENT: Sarlou Quarry Pty Ltd

TITLE: Figure 7 - Example Site Office Layout

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SCALE: 1:100 When Printed On A3 (0 – 2)

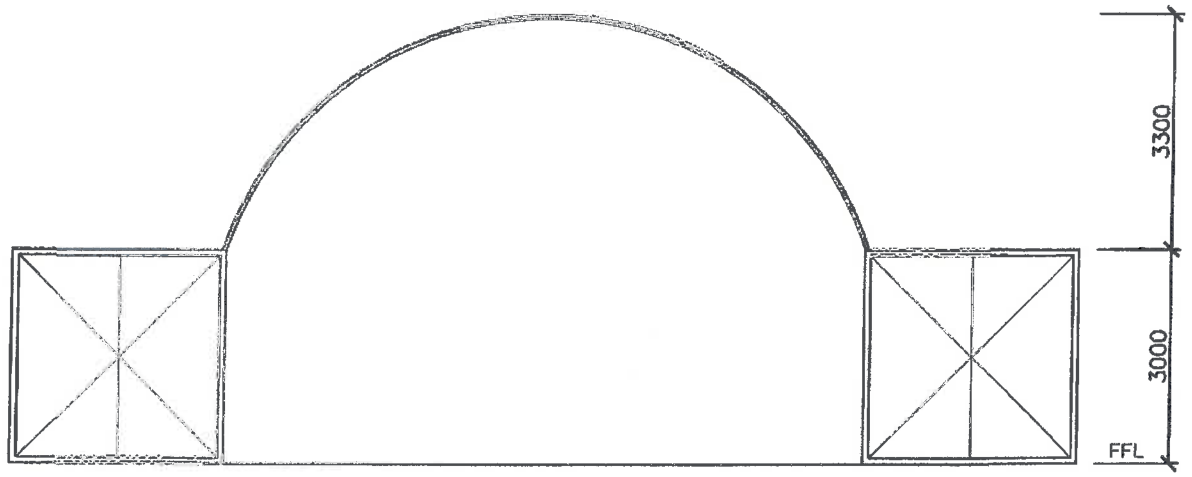
DATE: 24 June 2018 | DRAWN: JS

PRINTED: 24 June 2018 | CHECKED: JL

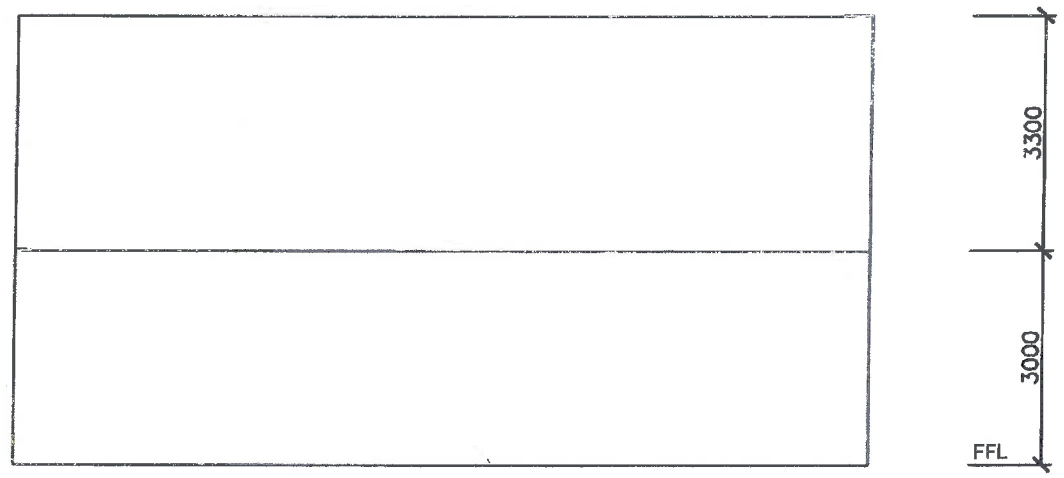
DRAWING NUMBER: 1735.021A | REVISION:

DATUM: HORIZONTAL / VERTICAL / ZONE

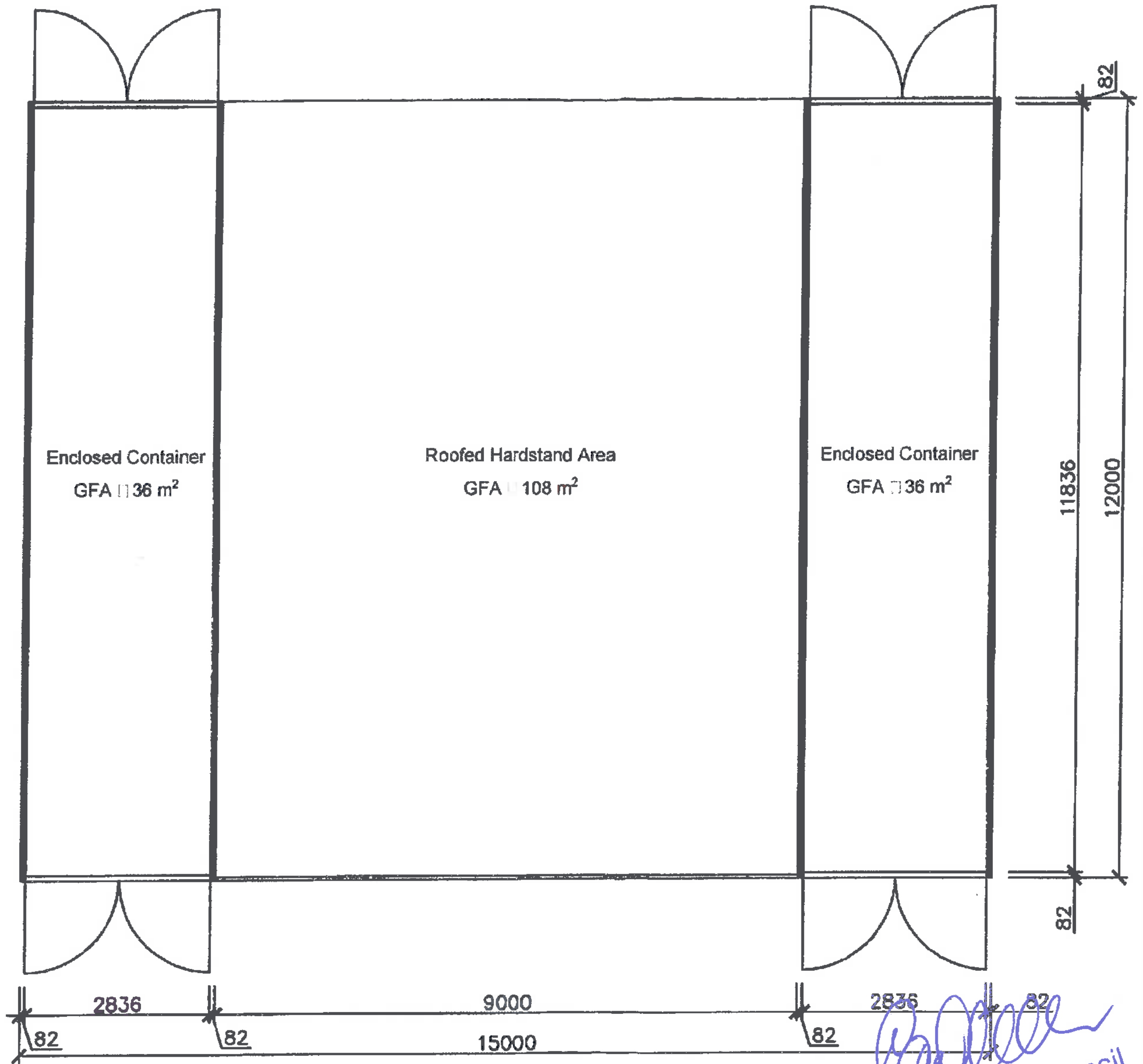
CREATED: 24 June 2018



North and South Elevation - Workshop



East and West Elevation - Workshop



Plan - Typical Workshop

Banana Shire Council
PLANNING APPROVAL
12 DEC 2018

CREATED: 22 December 2014 JOB SUB #:

REV	DESCRIPTION	DATE	BY

Data Sources:
Photography:
Topography:
Cadastre:
Ecosystem:
Other:

PROJECT: Sarlou Quarry

TITLE: Figure 8 - Example Workshop Layout

CLIENT: Sarlou Quarry Pty Ltd

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PH: +61 7 3871 0411
WWW.GROUNDWORK.COM.AU

SCALE: 1:100 When Printed On A3 (0 – 2)

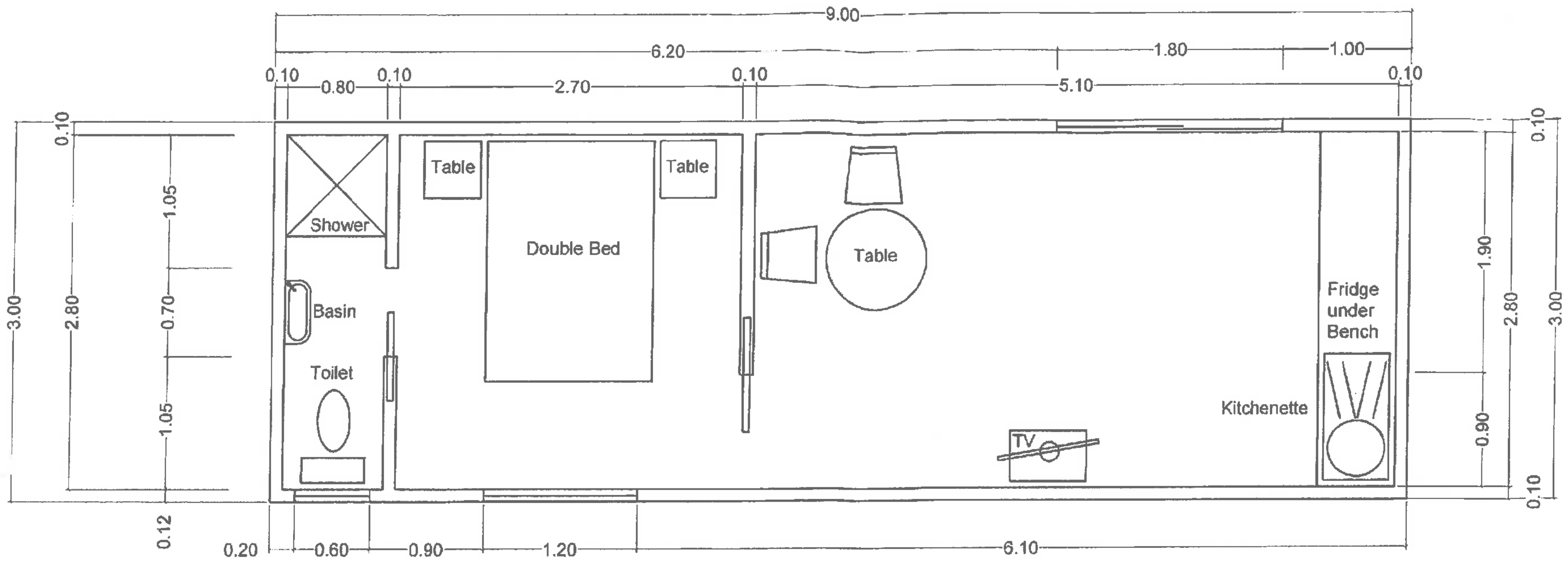
DRAWING NUMBER: 1735.022A

REVISION:

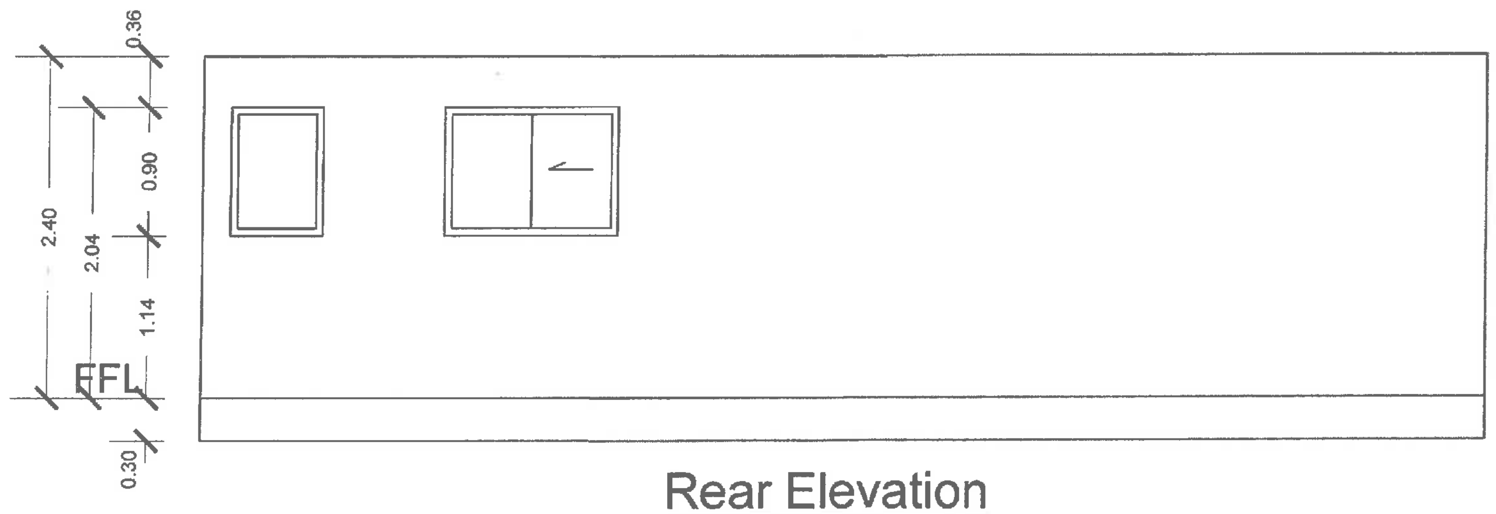
DATE: 18 November 2015 | DRAWN: JS

PRINTED: 24 June 2016 | CHECKED: JL

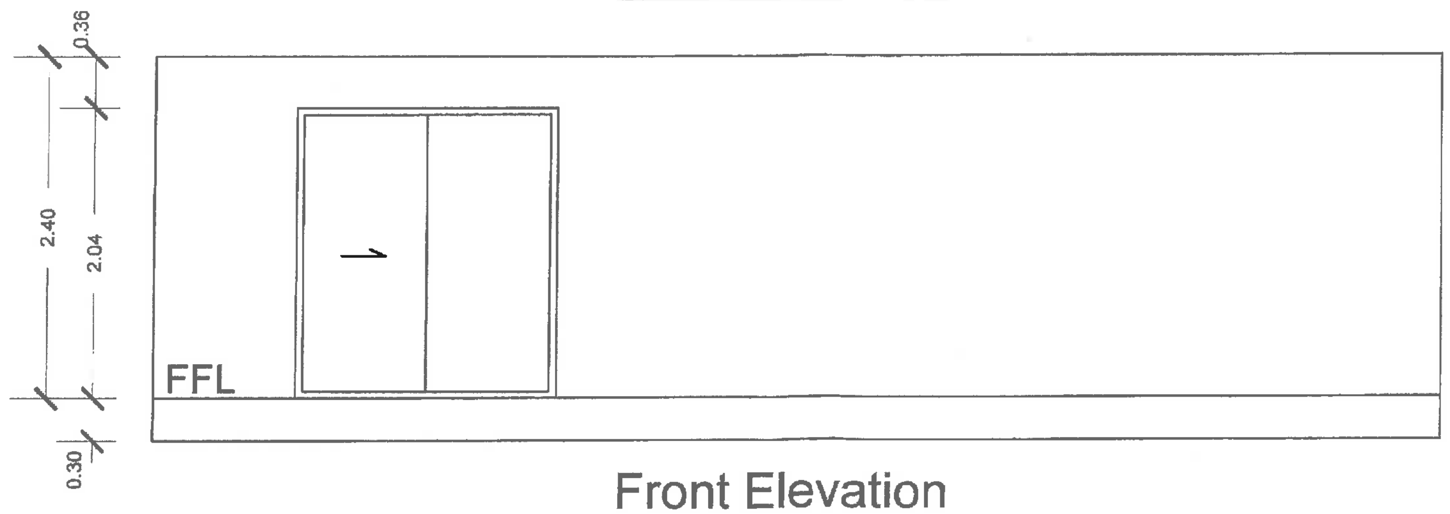
DATUM: HORIZONTAL / VERTICAL / ZONE



Plan



Rear Elevation



Front Elevation

Banana Shire Council
PLANNING APPROVAL
12 DEC 2018

CREATED: 18 April 2018

REV	DESCRIPTION	DATE	BY

Data Sources:
Photography: Google, Image date: 2014-05-25
Topography: 10m Contours, © The State of Queensland (DERM) 2012
Cadastre:
Ecosystem:
Other:

PROJECT: Sarlou Quarry

CLIENT: Sarlou Quarry Pty Ltd

TITLE: Figure 10 - Caretakers Residence

SCALE: 1:100 When Printed On A3 (0 – 2m)	DRAWING NUMBER: 1735.026	REVISION:
DATE: 18 April 2018 / DRAWN: MR	DATUM: HORIZONTAL / VERTICAL / ZONE	
PRINTED: 18 April 2018 / CHECKED: SL	MGA / AHD / 56	

Attachment 4
Environmental Obligations

GROUNDWORK plus

SARLOU QUARRY

ENVIRONMENTAL MANAGEMENT PLAN

Prepared for:
Sarlou Quarry Pty Ltd

Date:
March 2018

File Ref:
documents / 1735_610_002_V1

Banana Shire Council
PLANNING APPROVAL
12 DEC 2018

Document Control

Project/ Report Details

Document Title:	Sarlou Quarry: Environmental Management Plan
Principal Author:	
Client:	Sarlou Quarry Pty Ltd
Ref. No.	1735_610_002_V1

Document Status

Issue	*Description*	*Date*	*Author*	*Reviewer*
0	Environmental Management Plan	June 2016		
1	Revision in line with current application requirements.	March 2018		

Distribution Record

Recipient	*Distribution Method(s)*
Banana Shire Council	Electronic x 1
Sarlou Quarry Pty Ltd	Electronic x 1

Groundwork Plus ABN: 13609 422 791

Queensland
6 Mayneview Street, Milton Qld 4064
PO Box 1779, Milton BC, Qld 4064
P: +61 7 3871 0411
F: +61 7 3367 3317

E: info@groundwork.com.au

South Australia
2/1 First Street, Nuriootpa SA 5355
PO Box 854, Nuriootpa SA 5355
P: +61 8 8562 4158

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ATTACHMENTS

Attachment 1 Spill Response Protocol

1. Introduction

1.1 Background

Sarlou Quarry Pty Ltd ('Sarlou') proposes to establish an extractive industry and caretaker's residence to the southwest of Rockhampton, Queensland, refer to **Figure 1 – Site Location Plan**. The land is situated at 1426 Belldeen Defence Road, Woolein QLD 4702 on land properly described as Lot 53 on FN149 ('the site'), refer to **Figure 2 – Site and Surrounds**.

The activity will comprise the following Prescribed ERA thresholds in accordance with the *Environmental Protection Regulation 2008* (EP Reg):

- ERA 16 Threshold (2) (b) - Extracting, other than by dredging, in a year, 100,000 tonnes but not more than 1,000,000 tonnes.
- ERA 16 threshold (3) (b) - Screening in a year, 100,000 tonnes but not more than 1,000,000 tonnes.

The extractive operations will be carried out via processes that are standard to the industry. Quarry methodologies will involve initial topsoil and overburden stripping, drilling and blasting, extraction, haulage, processing, stockpiling and dispatch, refer to **Figure 3 – Quarry Conceptual Site Layout Plan**.

1.2 Site Details

The location details of the site for the proposed activities are summarised in **Table 1 – Summary of Subject Land**.

Table 1 – Summary of Subject Land

Address	1426 Belldeen Defence Road, Woolein QLD 4702
Access	Access to the Site is via Belldeen Defence Road, off Leichhardt Highway
Real Property Description	Lot 53 on FN149, County of Ferguson, Parish of Woolein
Total Area	981.46 hectares
Quarry Development Area (QDA)	56.11 hectares
Tenure	Freehold
Landowner	
Local Government	Banana Shire Council
Zone	Rural

1.3 Purpose of Environmental Management Plan

The EMP has been prepared with reference to the *Model operating conditions ERA 16—Extractive and screening activities* (EHP 2017). The EMP has been developed with reference to the requirements of Model Operating Condition PMG017 (G9), which states that the activity must be undertaken in accordance with written procedures that

1. identify potential risks to the environment from the activity during routine operations, closure and an emergency
2. establish and maintain control measures that minimise the potential for environmental harm
3. ensure plant, equipment and measures are maintained in a proper and effective condition
4. ensure plant, equipment and measures are operated in a proper and effective manner
5. ensure that staff are trained in and aware of their obligations under the *Environmental Protection Act 1994*
6. ensure that reviews of environmental performance are undertaken at least annually.

1.4 Relevant Legislation

In Queensland, the *Environmental Protection Act 1994* (EP Act) is the principal legislation for protecting the environment. The EP Act was assented on 1 December 1994 and was proclaimed on 1 March 1995. The object of the EP Act is to

"protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development)".

The EP Act imposes a General Environmental Duty on corporations, government departments and individuals, in order to meet the primary objective (s319 of the EP Act). The duty relates to the notion that everyone must take all reasonable and practicable measures to prevent or minimise environmental harm. The general environmental duty is extracted below for reference:

319 General environmental duty

1) *A person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm (the **general environmental duty**).*

   Note— See section 24 (3) (Effect of Act on other rights, civil remedies etc.).

2) *In deciding the measures required to be taken under subsection (1), regard must be had to, for example—*
   a) *the nature of the harm or potential harm; and*
   b) *the sensitivity of the receiving environment; and*
   c) *the current state of technical knowledge for the activity; and*
   d) *the likelihood of successful application of the different measures that might be taken; and*
   e) *the financial implications of the different measures as they would relate to the type of activity.*

In addition, the EP Act states that it is an offence to cause environmental nuisance (s440 of EP Act), material environmental harm (s438 of EP Act), serious environmental harm (s437 of EP Act), and it is an offence to contravene a condition of an Environmental Authority (s430 of EP Act).

1.5 Potential Environmental Impacts

The identification of activities and impacts is fundamental to designing and implementing procedures and measures proposed in the EMP. Activities associated with carrying out the activity have been tabulated against potential environmental impacts to provide a focus for preparing the EMP, refer to **Table 1 – Identification of Potential Impacts on Surrounding Environmental Values**.

Table 2 – Identification of Potential Impacts on Surrounding Environmental Values

Environmental Aspect	Source Activity	Potential Impact
Air	• Vegetation, topsoil, subsoil and overburden clearing. • Extraction and handling of materials (e.g. transfer of materials, stockpiling, transportation). • Screening and processing of the materials. • Wind erosion from exposed pit areas until such time as the dredging expands the waterbody. • Vehicle movements on unsealed roads and access tracks.	Emission of dust to air impacting nearby sensitive receptors.

Environmental Aspect	Source Activity	Potential Impact
Water	• Stripping and stockpiling of topsoil, subsoils and overburden. • Extraction and handling of materials (e.g. transfer of materials, stockpiling, transportation). • Screening and processing of the materials. • Overland flows interacting with disturbed areas and voids on the site.	• Release of potentially contaminated water to the receiving environment. • Unauthorised interference with overland flows. • Erosion and dispersion of soils as a result of increased disturbance areas and exposed soils.
Wetlands	• Stripping and stockpiling of topsoil and overburden. • Extraction and handling of materials (e.g. transfer of materials, stockpiling, transportation). • Screening and processing of the materials. • Overland flows interacting with disturbed areas and voids on the site.	Physical damage, and/or release of contaminants, to mapped wetlands.
Groundwater	Extraction and handling of materials (e.g. transfer of materials, stockpiling, transportation).	• Release of contaminants to groundwater. • Impacts to potential Groundwater Dependent Ecosystems (GDEs).
Noise	• Clearing of remnant vegetation ahead of the extraction activity. • Stripping and stockpiling of topsoil, subsoil and overburden. • Extraction and handling of materials (e.g. transfer of materials, stockpiling, transportation). • Screening and processing of the materials. • Vehicle movements on unsealed roads and access tracks. • Plant and equipment use.	Noise nuisance for nearby sensitive receptors.
	Blasting activities.	Impacts to sensitive places as a result of air-blast overpressure and ground-borne vibration.
Waste	Storage and disposal of residual waste (i.e. general and regulated waste).	Improper disposal of wastes (general and regulated waste).
Land	• Clearing of vegetation ahead of the extraction activity. • Extraction and handling of materials (e.g. transfer of materials, stockpiling, transportation). • Handling of chemicals and fuels on-site. • Progressive and/or post-closure implementation and management of the site rehabilitation. • Weed control.	• Impacts to Matters of State Environmental Significance (MSES). • Spills of hydrocarbons and chemicals. • Failure of progressive and/or final rehabilitated landforms.

2. Policies and Procedures

2.1 Environmental Policy

Site management is committed to being environmentally responsible, and to conducting activities in compliance with environmental legislation, and will strive to achieve leading practice environmental management. In the process of implementing this policy, management shall:

- implement work programs to protect the surrounding environment
- meet the requirements of all laws, acts, regulations and standards relevant to its operations and activities.
- make the most efficient use of natural resources taking due regard of environmental issues and ensuring land maintains long term productivity.
- implement a program to train all Employees in general environmental issues and individual workplace environmental responsibilities.
- continually improve environmental practices to reflect changing legislation, new technology and scientific advances, lessons learned from environmental incidents and increasing knowledge and experience of Site specific issues.
- allocate necessary resources to ensure the implementation of the environmental policy.

2.2 Staff Training

All site personnel, including contractors, will be inducted on the environmental management requirements for the site and informed of the environmental management objectives and specifics of the EMP as well as obligations under the *Environmental Protection Act 1994*. Training may include awareness on impact minimisation measures, operational practices, maintenance measures, reporting, and individual responsibilities.

Site personnel are to be made aware of penalties if conditions of approval are breached and reporting requirements for incidents involving environmental nuisance and/or harm in accordance with the relevant environmental legislation. A record of all employee training is to be maintained on-site.

2.3 Communication

Effective communication must take place regarding environmental matters at the site between operational personnel, management and external stakeholders.
Internal communication mechanisms relating to environmental matters and potential impacts, objectives and targets, training and awareness, complaints and incidents, and suggestions for improvement may include, but shall not be limited to:

- self-assessments and audits
- action requests, memos, noticeboards, etc.
- environmental incident reporting
- environmental compliance monitoring and reporting
- inductions and environmental awareness training
- tool-box talks or verbal advice
- weekly construction meetings
- management reviews
- site meetings.

All external communications are to be undertaken by management. External communication mechanisms for environmental matters may include:

- formal and informal correspondence with the administering authorities.
- formal correspondence with interest groups.
- community complaints and enquiries.

2.4 Incidents and Complaints Procedure

2.4.1 *Overview*

The objective of this Incidents and Complaints Procedure is to ensure that any incidents and/or complaints are reported and investigated, and appropriate action taken. A diagrammatic overview of incidents and complaints reporting procedure is provided in **Plate 1 – Incidents and Complaints Procedure Summary**.

Plate 1 – Incidents and Complaints Procedure Summary

The Quarry Manager will be responsible for ensuring that all employees at the site are familiar with the procedure for incidents and complaints recording. All complaints received are to be reported to the Quarry Manager or delegate immediately.

When an employee becomes aware of an incident with actual or potential environmental implications, the employee must report the incident to the Quarry Manager or delegate immediately.

To demonstrate regard for the general environmental duty, all possible breaches should be reported to the administering authority as soon becoming aware of the matter, even if there is uncertainty as to whether a condition of the EA has been breached.

2.4.2 *Recording*

The following details shall be recorded upon receipt of any incident and/or complaint:

- Date, time, location and nature of the incident or complaint.
- Type of communication (e.g. telephone, letter, email, personal, etc.).
- Name, contact address and contact telephone number of the person reporting the incident or complaint (N.B. if the complainant does not wish to be identified then 'not identified' is to be recorded).
- Details (e.g. Nature and extent) of the incident or complaint.
- Investigations undertaken, and actions taken, as a result of the incident or complaint.
- Name of person responsible for receiving and/or investigating the complaint.
- Conclusions formed.

The Quarry Manager will liaise with any complainants to discuss the nature of the complaint, to identify possible causes and outline any actions to be taken to prevent recurrence of the incident.

2.4.3 *Notification*

When a breach of an EA condition, or an environmental incident occurs, the Quarry Manager will notify the administering authority via telephone and email within 24 hours of becoming aware of the incident. The contact details of the administering authority are as follows:

Department of Environment and Sciences
Phone: 1300 130 372
Email: PollutionHotline@des.qld.gov.au

2.4.4 *Investigation*

All incidents and complaints should be investigated. The investigations should include:

- determining what activities were being carried out at the time of the complaint/incident and any equipment involved.

- identifying whether equipment or activities on-site were the cause of the incident or complaint
- determining what potential actions may be carried out to resolve the matter and/or minimise the likelihood of further impacts.

Corrective action is to be implemented and an assessment conducted to determine what actions are to be taken to remedy the matter and/or prevent a similar incident from occurring. All incidents and complaints recorded and reported are to be maintained for a minimum period of five years. If monitoring is to be undertaken to investigate an incident or complaint, the operator may engage the services of a suitably qualified person to undertake the assessment.

2.5 Record Keeping

All environmentally relevant documentation, including approvals, corporate policies, procedures, forms, records, and reports required to be kept as per this EMP or conditions of approval shall be available at the approved premises for a period of at least five (5) years, and must be available for inspection by an authorised person.

2.6 Monitoring

Any monitoring required by a condition of approval or by this EMP must be carried out by a suitably qualified person(s) as defined under the EP Act. All instruments, equipment and measuring devices used for measuring or monitoring in accordance with a condition of approval must be calibrated and appropriately operated and maintained.

2.7 Periodic Review of Environmental Performance and Continual Improvement

The EMP has been prepared for implementation as a continuous improvement program. The following key aspects of this EMP ensures continuous improvement results from the implementation of this EMP.

Commitment and Environmental Policy
Senior management are to commit to environmental performance through ensuring regulatory compliance, prevention of actual or potential environmental harm, and continuous improvement. The environmental policy (refer **Section 2.1 - Environmental Policy**) outlines these commitments.

Planning
The EMP identifies environmental aspects associated with the site operations, such as potential impacts. The risk assessment undertaken as part of the *Environmental Assessment Report* (EAR) (Groundwork Plus 2018, Doc ref. 1735_620_001_V1), determined matters that required specific management measures to ensure the environmental objectives can be met. This EMP outlines the environmental objectives, performance targets and management measures for each environmental aspect.

Implementation
Implementation of the EMP outlines responsibilities, training requirements, communication procedures, and contingency plans. The operator will be responsible for ensuring additional implementation requirements are in place, such as preparing monitoring documentation, following procedures, and establishing communication pathways.

Checking
Monitoring of compliance will determine whether the environmental objectives are being met and will identify non-compliances. Additional actions that will check environmental performance include audits and review of the EMP.

Review
Environmental performance must be communicated to Senior Management, and reviews undertaken as required. Reviews of environmental performance are to be undertaken at least annually.

The General Manager will review and update this EMP as required to ensure that it meets operational needs and is consistent with the site's approval requirements, legislation and standards. Reasons for review of the EMP may result from:

- identification of deficiencies or opportunities for improvement.
- recommendations from environmental site audits.

- changes to operations (e.g. thresholds, development stage progression).
- changes to legislation.

Periodic review of the EMP will ensure continuous improvement of the site environmental performance through adaption of management strategies to meet the changing needs of the site.

3. Environmental Management Plans

3.1 Air Quality Management Plan

Objective	The activity will be operated in a way that protects the environmental values of air.
Purpose	This Air Quality Management Plan has been prepared to control potential air quality impacts occurring as a result of land disturbance necessary for the operation. The *Environmental Protection Act 1994* and the associated *Environmental Protection (Air) Policy 2008* provide the legislation and regulatory controls for management of emissions to the atmosphere.
Performance Targets	Dust and particulate matter emissions generated by the activities must not cause exceedances of the following levels when measured at any sensitive or commercial place: • Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with the most recent version of *Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter – Gravimetric method.* • A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, for no more than five exceedances recorded each year, when monitored in accordance with the most recent version of either: o *Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM_{10} high volume sampler with size selective inlet – Gravimetric method*, or o *Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM_{10} low volume sampler—Gravimetric method.* • A concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a 1-year averaging time, when monitored in accordance with the most recent version of *AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—Total suspended particulate matter (TSP)—High volume sampler gravimetric method.*
Strategies / mitigation measures	<u>Disturbed areas</u> • Dampen down work areas access roads, stockpiles and other hardstand areas by water spraying when visual surveillance indicates excessive dust generation and propagation from point or mobile sources. • Monitor meteorological conditions to time high dust generating activities accordingly and reschedule work if wind is likely to transport contaminants to a sensitive or commercial place. • Restrict vehicle movements to designated tracks and areas to the extent practicable. • Install water sprays or dry dust collection systems at all major dust sources. • Engage a water truck/cart to dampen access roads. <u>Processing Plant</u> • Dampen materials prior to transport/handling. • Use water sprays and/or dust collection systems at transfer points. • Use shielding and/or windbreaks where possible. • Maintain vehicles and equipment in accordance with the original equipment manufacturers' specifications.

3.1 Air Quality Management Plan

Stockpiles

- Use water sprays as required during winds likely to generate dust releases.
- Use dust suppressants and shielding where possible.
- Limit the height of stockpiles to <6m, where practicable.

Trafficable Areas

- Enforce a maximum speed of 40 km/hr on unsealed haul and internal roads.
- Pave and/or seal high trafficable access roads and/or tracks, where practicable.
- Keep trafficable areas as clean as possible.
- Maintain road surfaces in good condition.

Material Transport and Transport Vehicles

- Ensure signage is installed advising all drivers to contain and cover all loads of material prior to leaving the Site.
- Ensure loads are appropriately contained and covered prior to leaving the Site.
- Clear spillages from side rails, tailgates and draw bars of trucks (following loading and tipping).
- Securely fix tailgates of all material transport vehicles prior to loading to prevent material.

Screening Equipment

- Install windshields, enclosures and/or barriers where possible.
- Maintain material in moistened state through the use of water sprays or other suitable alternative.

Rehabilitation

- Progressively rehabilitate the Site as areas become available.
- Minimise windblown dust during any rehabilitation activities.
- Ensure vehicles use established roads and tracks where possible and limit access to any rehabilitated areas.

Other

- Employees and contractors are to be made aware of dust management practices.
- Ensure sufficient on-site water supply is available for dust suppression.
- Apply good housekeeping practices.

Monitoring

The controls nominated will require regular monitoring and review to ensure that performance accords with design criteria and also reflect the dynamic nature and changing needs of the operation. Daily visual surveillance will be undertaken by all employees to ensure dust generation on-site is controlled appropriately.

Dust and particulate monitoring will be undertaken as required in accordance with the relevant conditions of the EA. Monitoring will be carried out at a place relevant to the potentially affected, nuisance-sensitive place. Monitoring is to be undertaken by a suitably qualified person in accordance with Australian Standard *AS3580.10.1 of 2003 – Determination of particulate matter – Deposited matter – Gravimetric method* (or most recent edition).

When requested to undertake monitoring, monitoring results are to be provided to the administering authority following completion of the monitoring event. Monitoring shall be carried out at a place(s) relevant to the potentially affected dust sensitive place and must include:

- for a complaint alleging dust nuisance, dust deposition

3.1 Air Quality Management Plan

	• for a complaint alleging adverse health effects caused by dust, the concentration per cubic metre of particulate matter with an aerodynamic diameter of less than 10 micrometre (µm) (PM10) suspended in the atmosphere over a 24hr averaging time.
Contingency Plan	In the event that air quality monitoring (dust and/or particulate matter) determines an exceedance of the approved limits, the Quarry Manager may engage the services of a suitably qualified person to determine additional management strategies to mitigate impacts. Any exceedance of the performance targets is to be recorded in accordance with **Section 2.4 – Incidents and Complaints Procedure**, and corrective action is to be identified and undertaken in consultation with the administering authority. Additional air quality monitoring will be undertaken where necessary to determine the efficacy of the additional management strategies.

3.2 Water Quality Management Plan

Objective	The activity will be operated in a way that protects the environmental values of water.
Purpose	This Water Quality Management Plan has been prepared to control potential environmental impacts to water that may result from the carrying out of the activity. The Water Quality Management Plan has also been developed to ensure adequate control measures are implemented to minimise the potential for impacts associated with leachate.
Performance Targets	• Stormwater runoff from disturbed areas, generated by (up to and including) a 24-hour storm event with an ARI of 1 in 5 years must be retained on-site, or managed to remove contaminants before release. • An **uncontrolled release** from site should only occur under exceptional circumstances such as the site receiving a rainfall event larger than a 24-hour storm event with an ARI of 1 in 5 years. • Water that is **controlled released** from the site is to comply with conditions of the Environmental Authority, as detailed below: • No release of prescribed water contaminants (*Schedule 9, Environmental Protection Regulation 2008*) including sand, suspended solids, turbid waters, chemicals, lubricants or fuels from the site to any waters. • No release of contaminants to groundwater. • The only contaminants to be released to waters are treated stormwater runoff waters in accordance with the EA conditions.
Strategies / mitigation measures	An interim conceptual erosion and sediment control plan has been prepared for the site, which is to be implemented. Refer to **Figure 4 – Conceptual Interim Stormwater Erosion and Sediment Control Plan** for details. General strategies / mitigation measures for the management of surface water runoff and erosion and sediment transport from the site will be implemented in accordance the relevant approval conditions. Erosion and Sediment Control (ESC) measures for the site have been provided below for each main consideration when discussing ESC / Stormwater Management. **Sediment Basins** • Sediment basins are to be returned to a 1 in 5-year ARI holding capacity within 5 days from receiving the design rainfall event. • Sediment basins must be designed to capture sediment up to a depth of 0.5 m within the base of the pit. An indicator marker is to be installed at the base of the pit to identify the level of sediment accumulated. • Sediment is to be removed to return the sediment basins to full capacity on a periodic basis or when the sediment level is approaching the sediment storage capacity. This material is to be excavated and managed in line with the management measures detailed in **Erosion and Sediment Control** (section below). • Sediment must not be disposed of in a manner that will create an erosion or pollution hazard. • Sediment basins are to be inspected during the following periods: – Quarterly as a minimum. – After each rain event, particularly focusing on the entry and exit points, if damage has occurred then make necessary repairs. – Prior to or immediately after periods of sustained shut down (i.e. greater than 30 days).

Erosion and Sediment Control

Site Management

- Allow stormwater to pass through the site in a controlled manner and at non-erosive flow velocities up to the specified design storm discharge.
- Minimise soil erosion resulting from rain, water flow and/or wind.
- Minimise adverse effects of sediment runoff, including safety issues.
- Prevent, or at least minimise, environmental harm resulting from work-related soil erosion and sediment runoff.
- Ensure that use of land/properties adjacent to the development are not diminished as a result of the adopted ESC measures.
- With the exception of floating equipment, all machinery and ancillary equipment for the activity must be stored on the landward side of the high banks of any surface waters (DES 2017).

Land Clearing

- Land clearing to be undertaken in conjunction with development of each stage of the quarry.
- Bulk tree clearing must occur in a manner that minimises disturbance to existing ground cover (organic or inorganic).
- Disturbance to natural watercourses (including bed and banks) and their associated riparian zones must be limited to the minimum practicable extent and be accompanied by the relevant approval.
- No land clearing shall be undertaken unless preceded by the installation of adequate drainage and sediment control measures, unless such clearing is required for the purpose of installing such measures, in which case, only the minimum clearing required to install such measures shall occur.
- Prior to land clearing, areas of protected vegetation, and significant areas of retained vegetation must be clearly identified for the purposes of minimising the risk of unnecessary land clearing.
- All reasonable and practicable measures must be taken to minimise the removal of, or disturbance to, those trees, shrubs and ground covers (organic or inorganic) that are intended to be retained.
- All land clearing must be undertaken in accordance with the Development Approval and applicable legislation.
- Land clearing is limited to the minimum practicable extent during those periods when soil erosion due to wind, rain or surface water is possible.

Site Access

- Site exit points must be appropriately managed to minimise the risk of sediment being tracked onto sealed, public roadways.

Stockpile Management

Stockpiles of erodible material that has the potential to cause environmental harm if displaced, must be:

- Adequately protected from wind, rain, concentrated surface flow and excessive upslope stormwater surface flows.
- Located at least 5 m from any hazardous area, retained vegetation or concentrated drainage line.
- Located up-slope of an appropriate sediment control system.
- A suitable flow diversion system must be established immediately up-slope of a stockpile.
- Prior to wet season (September - April) overburden / soil stockpiles should be managed or located out of concentrated stormwater flow paths.

Drainage Control

- Wherever reasonable and practicable, stormwater runoff entering the site from external areas, and non-sediment laden (clean) stormwater runoff entering a work area or area of soil disturbance, must be diverted around or through that area in a manner that minimises soil erosion and the contamination of that water for all discharges up to the specified design storm discharge.
- All reasonable and practicable measures must be implemented to control flow velocities in such a manner than prevents soil erosion along drainage paths and at the entrance and exit

	• Wherever reasonable and practicable, "clean" surface waters must be diverted away from sediment control devices and any untreated, sediment-laden waters. • The internal drainage channel shall be constructed with silt traps. Such silt traps shall be cleared at regular intervals. <u>Sediment Control</u> • Efforts shall be employed to trap sediment within the site, and as close as practicable to its source. • Sediment traps must be installed and operated to both collect and retain sediment. • The potential safety risk of proposed sediment control devices to site workers, visitors and the public must be given appropriate consideration, especially those devices located within commonly accessible areas. • All reasonable and practicable measures must be taken to prevent, or at least minimise, the release of sediment from the site. • Suitable all-weather maintenance access must be provided to all sediment control devices. • Sediment control devices must be de-silted and made fully operational as soon as reasonable and practicable after a sediment-producing event, whether natural or artificial, if the device's sediment retention capacity falls below 75% of its retention capacity. • Materials, whether liquid or solid, removed from sediment control devices during maintenance or decommissioning, must be disposed of in a manner that does not cause ongoing soil erosion or environmental harm. <u>Site Maintenance</u> • All erosion and sediment control measures, including drainage control measures, must be maintained in proper working order at all times during their operational lives. • Sediment removed from sediment traps and places of sediment deposition must be disposed of in a lawful manner that does not cause ongoing soil erosion or environmental harm.
Monitoring	• Water quality monitoring must be in accordance with the methods prescribed in the current edition of the administering authority's *Monitoring and Sampling Manual* (DES 2017). • A summary schedule of the various inspections, performance criteria and responses that shall be performed on site is shown in **Table 3 – Inspection and Maintenance of Stormwater Control Devices.**
Contingency	After any identification of incident or failure, the source/cause is to be immediately located and the following measures implemented: • Excessive sediment build-up on-site – collect and dispose of material, then amend up-slope drainage and/or erosion control measures as appropriate to reduce further occurrence. • Severe or excessive rill erosion – investigate cause, control up-slope water movement, re-profile surface, cover dispersive soils with a minimum 100mm layer of non-dispersive soil, and stabilise with erosion control measures and vegetation as necessary. • Poor vegetation growth or soil coverage – plant new vegetation and/or mulch as required. • Sediment control failure – replace and monitor more frequently. Regular failures may mean that the sediment control location, alignment or installation may need to be amended. • Scour / erosion of bunds will be required to be stabilised. If a release of contaminants occurs off-site not in accordance with the conditions of the EA, the administering authority must be notified, and an investigation conducted to identify appropriate action to resolve the issue to the fullest practicable extent. Refer to **Section 2.4 – Incidents and Complaints Procedure** of this EMP for details regarding reporting of incidents.

Table 3 – Monitoring and Maintenance of Stormwater Control Devices

Inspection	Minimum Frequency	Performance Criteria	Response
Inspect drainage lines including catch drains, contour drains and diversions	Quarterly, and prior to and following rainfall events	• Erosion in areas adjacent to water conveyancing structures	• Eroded areas shall be rip rapped as soon as practicable
		• Overtopping of water conveyancing structures (identified by the scouring of the drain batters perpendicular to the direction of flow)	• The drain shall be cleaned of sediments and rip rap replaced to the original design specifications • Rehabilitation with grasses in the catchment of the drain may be required to reduce sediment loadings of runoff
Inspect potential sediment storage capacity of grit traps, sediment traps and Water Storage Areas	Quarterly or following major rainfall events	• Storage capacity maintained at >75%	• Sediment/grit shall be removed from the structure
			• Recycle excavation pit water to ensure that adequate free storage is maintained for the collection and holding of runoff
Waste containers	Quarterly	• Waste is stored in appropriate containers • Waste receptacles labelled	• Ensure waste material is stored and disposed of properly
Spill response stations	Quarterly and following use	• Equipment is properly maintained	• Maintain equipment • Replace used equipment
Maintenance / refuelling area	Quarterly	• Fuel, oil spills	• Clean up fuel spills and investigate source
		• Contractor maintenance	• Maintain contractor maintenance records
		• Fuel storage integrity maintained	• Investigate and repair potential leaks

3.3 Groundwater Management Plan

Objective	The activity will be operated in a way that protects the environmental values of groundwater and any associated surface ecological systems.
Purpose	To provide overarching principles for management of the quarry to prevent impacts to groundwater resources.
Performance Targets	• No release of contaminants to groundwater. • No groundwater drawdown as a result of the extraction activities.
Strategies / Mitigation Measures	• Quarrying operations are to avoid interception of groundwater. • Prior to any extraction below RL 200 m, additional investigations will be required to confirm the depth of groundwater to ensure interception of the water table is avoided.
Monitoring	Monitoring of the quarry operations must be undertaken by the Quarry Manager to detect whether groundwater is intercepted through the course of extraction.
Contingency Plan	If a release of contaminants occurs to groundwater not in accordance with the conditions of the EA, the administering authority must be notified, and an investigation conducted to identify appropriate action to

	resolve the issue to the fullest practicable extent. Refer to **Section 2.4 – Incidents and Complaints Procedure** of this EMP for details regarding reporting of incidents.

3.4 Noise Management Plan

Objective	The activity will be operated in a way that protects the environmental values of the acoustic environment.
Purpose	This Noise Management Plan has been prepared to control potential nuisance impacts occurring as a result of noise associated with the operations.
Performance Targets	• No environmental nuisance complaints relating to noise generated from the site operations. • Site operations shall comply with the noise criteria specified in the EA.
Strategies / mitigation measures	The following noise control measures may be implemented to assist in mitigating noise associated with the site activities: • Operate well-maintained plant, vehicles and equipment, and ensure all plant, vehicles and equipment are serviced in accordance with, or more frequently than, manufacturers' specifications • Avoid unnecessary revving of engines. • Shut down equipment when not in use. • Ensure that equipment at the site is used for the intended purpose. • Ensure that any extraneous noises are rectified. • Maintain haul roads and hardstand surfaces in good condition (e.g. free of potholes, rills and product spillages) and with suitable grades. • Avoid the use of compression braking on product delivery trucks in residential areas.
Monitoring	The Quarry Manager will: • ensure regular surveillance of the site to qualitatively assess noise generation from the operations. • initiate a noise survey when requested by the administering authority, or as otherwise deemed necessary, to investigate a noise complaint. Methods for measurements and reporting of noise monitoring must comply with the most recent edition of the administering authority's *Noise Measurement Manual*. The measurement and reporting of noise levels will be undertaken by a person or body possessing both the qualifications and the experience appropriate to perform the required measurements. Monitoring must include: • $L_{Amax, adj, T}$ • Background noise (Background) as $L_{A\,90, adj, T}$ or $L_{abg, T}$ • MaxLpA,T • the level and frequency of occurrence of any impulsive or tonal noise effects due to extraneous factors such as traffic noise • atmospheric conditions including wind speed and direction • effects due to extraneous factors such as traffic noise • location, date and time of recording.
Contingency Plan	Any compliant received regarding noise nuisance at a sensitive or commercial place must be recorded and investigated by the Quarry Manager in accordance with **Section 2.4 – Incidents and Complaints Procedure.** In the event that noise monitoring determines an exceedance of the approved limits, the Quarry Manager may engage the services of a suitably qualified person to determine additional management strategies to mitigate impacts. Additional noise monitoring will be undertaken where necessary to determine the efficacy of the additional management strategies.

3.5 Blasting Management Plan

Objective	The activity will be operated in a way that protects the environmental values of the acoustic environment.
Purpose	Blasting will be required to fragment rock to a manageable size that can be transported and fed into the on-site crushing and screening plant. Blasting practice has the potential to generate excessive noise and vibration impacts that may cause nuisance for sensitive receptors. Section 440ZB of the *Environmental Protection Act 1994* provides the legislation for blasting.
Performance Targets	Blasting activities must not exceed the limits for peak particle velocity and air blast overpressure in **Table 4 - Blasting Limits** when measured at any sensitive place or commercial place in accordance with the associated monitoring requirements.
Strategies / mitigation measures	The following control measures may be implemented to assist in mitigating potential noise nuisance from blasting associated with the site activities: • Only suitably experienced and qualified blasting personnel shall be employed or contracted to provide blasting services. • Blasting must be carried out in accordance with the current edition of the administering authority's *Guideline: Noise and vibration from blasting* (DES 2016) and with *Australian Standard 2187*. • Unless prior approval is obtained from the administering authority; blasting is only permitted during the hours of 9am to 3pm Monday to Friday, and from 9am to 1pm on Saturdays. Blasting is not permitted at any time on Sundays or public holidays • Handling, transport and use of explosives shall be carried out in accordance with the requirements of *AS 2187.2-2006 Explosives - Storage and use - Use of explosives*, and the *Mining and Quarrying Safety and Health Act 1999* (MQSH Act) and associated Regulation. • The maximum instantaneous charge or charge mass per delay will be limited to the lowest possible level. • A blast plan shall be prepared for each blast, containing blast hole layout, initiation sequence, charging, stemming type and height, charge weight and any other design element, required for good blasting practice. • Blast areas may be dampened down prior to blasting to minimise dispersion of dry and fine materials where practicable, or where it is identified as a source of potential dust nuisance.
Monitoring	Monitoring of blasting activities must be undertaken by a suitably qualified person in accordance with the administering authority's guideline *Noise and Vibration from Blasting* and the *Noise Measurement Manual* and any relevant Australian Standard. **Frequency and Location** Monitoring will generally be conducted around the quarry to confirm that the air blast and ground vibration levels do not exceed the criteria specified. Blasts should be randomly selected or monitored on a fixed schedule (e.g. five continuous blasts). The method of measurement and reporting of vibration levels must comply with Appendix J of AS 2187.2-2006. Measurements should be conducted by suitably trained personnel using appropriate equipment. Equipment should be calibrated on a regular basis in accordance with the manufacturers recommendations or other appropriate standards Where a nuisance complaint regarding air blast overpressure or ground vibration is received, consideration will be given to available monitoring results and locations, and if required or advantageous, a monitor will be installed at an appropriate location for the next five (5) blasts to assess compliance, or when requested by the administering authority. All monitoring and reporting shall be

	undertaken by a person or body possessing both the qualifications and the experience appropriate to perform the required measurements.
Contingency Plan	Any compliant received regarding nuisance at a sensitive or commercial place caused by blasting activities must be recorded and investigated by the Quarry Manager in accordance with **Section 2.4 – Incidents and Complaints Procedure.** In the event that blast monitoring determines an exceedance of the approved limits, the Quarry Manager may engage the services of a suitably qualified person to determine additional management strategies to mitigate impacts. Additional blast monitoring will be undertaken where necessary to determine the efficacy of the additional management strategies.

Table 4 – Blasting Limits

Blasting criteria	Blasting limits
Air-blast overpressure	115 dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120 dB (Linear) Peak at any time.
Ground vibration peak particle velocity	5 mm/s peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10 mm/s peak particle velocity at any time.

Associated monitoring requirements: Monitoring must be performed in accordance with the most recent edition of the administering authority's Noise and Vibration from Blasting guideline and Noise Measurement Manual and any relevant Australian Standard.

3.6 Hydrocarbons and Chemicals Management Plan

Objective

The activity is operated in a way that protects the environmental values of land including soils, subsoils, landforms and associated flora and fauna.

Purpose

The Hydrocarbons and Chemicals Management Plan has been prepared to control the potential for spills or leaks from chemicals and hydrocarbons associated with the site activities.

Performance Targets

- No land contamination from the extractive industry activity that would require registration on the Environmental Management Register (EMR) or Contaminated Land Register (CLR).
- No serious spills of oils, greases, fuels or other hazardous chemicals.
- No preventable release of hydrocarbons and chemicals to the environment.

Strategies / mitigation measures

General

- Spills are to be cleaned up immediately. Spillages must not be cleaned up in a way that releases wastes, contaminants or other materials to any stormwater drainage systems, roadside gutters or waters.
- Refuelling, equipment maintenance and cleaning of vehicles is to be undertaken within a designated area such as hardstand / sealed capable of capturing and containing contaminants to prevent release to land.
- Induct all new employees on the use of handling of chemicals used on-site.
- Maintain the chemical and fuel storage areas in a neat and tidy condition.
- Safety Data Sheets (SDS) of chemicals used on site shall be kept in a register at the site office.

Spill Kits

- Maintain appropriate spill kits and personal protective equipment at locations known to all employees (e.g. refuelling locations, chemical storage facilities, mobile equipment).
- Ensure employees are familiar with, and trained in the use of, proper spill clean-up procedures and maintain a copy of the procedures at the approved place at all times.

Bunding and Storage

- All chemical storage facilities on-site must meet specifications of Australian Standard *AS 1940 - The storage and handling of flammable and combustible liquids*, as a minimum.
- Bunding will be constructed of material which is impervious to the material stored and transferred therein.
- Bunds will be kept in good condition (e.g. no cracks, gaps or leaks)
- Roofed storage facilities are to be provided where possible.
- Stormwater captured within bunding is to be removed as soon as practicable and disposed of as contaminated water (if required).
- Empty hydrocarbon and chemical containers are to be stored with closures in place on hardstand or within a bunded area.
- A collection sump must be provided in the floor of the bunding to facilitate the removal of liquids.
- All pipe work in the bunded area must be directed over the bund wall and not through it.
- Where vehicle access to the bunded area is required, access must be by way of a rollover bund.

Disposal

- Hydrocarbon contaminated materials are to be appropriately disposed of at a licensed facility.
- If the material is a Regulated Waste (as defined under the legislation) it will be transported and disposed of by a licensed contractor.
- Oily waste materials, including liquid hydrocarbons, should be segregated from general wastes for disposal off-site by a licensed contractor.
- Records are to be kept on disposal of waste for all regulated waste materials.

Monitoring	Areas where handling of hydrocarbons and chemicals occur (e.g. refuelling or minor on-site servicing) shall be regularly inspected by the Quarry Manager. All employees will be responsible for the safe day to day handling, use and temporary storage of chemicals being used on-site.
Contingency Plan	In the event of an incident involving hydrocarbons or chemicals, the cause of the incident will be investigated, and a review of management practices will be undertaken to determine any potential for improvement to prevent a recurrence of the incident. The Spill Response Protocol included as **Attachment 3 – Spill Response Protocol** provides general guidance on the actions to be taken in the event of a spill. Remediation of land contamination may be required in the event of more serious incidents; however, the operator is to consult with the administering authority and a suitably qualified person to determine the nature and extent of any contamination remediation exercise.

3.7 Waste Management Plan

Objective

Any waste generated, transported, or received as part of carrying out the activity is managed in a way that protects all environmental values.

Purpose

This Waste Management Plan (WMP) has been prepared with reference to the conditions of approval to ensure wastes produced on-site are appropriately managed.

The type of wastes that may be generated at the site may include, but are not necessary limited to the following:

- Regulated wastes (e.g. Batteries, oil filters, waste oil/hydrocarbons and containers, oil/water emulsions and tyres)
- Scrap metal and used or faulty parts and equipment
- General waste such as food waste, packaging and consumables
- Green waste.

The amount of waste generated will fluctuate over the life of the operation, therefore a record of wastes generated will be maintained in an on-site inventory.

The *Waste Reduction and Recycling Act 2011* (WRR Act) nominates a waste management hierarchy in a preferred order of adoption. The hierarchy is as follows:

(a) AVOID unnecessary resource consumption
(b) REDUCE waste generation and disposal
(c) RE-USE waste resources without further manufacturing
(d) RECYCLE waste resources to make the same or different products
(e) RECOVER waste resources, including the recovery of energy
(f) TREAT waste before disposal, including reducing the hazardous nature of waste
(g) DISPOSE of waste only if there is no viable alternative.

Performance Targets

- Implement the WRR Act waste management hierarchy.
- Maintain a record of any disposal of trackable wastes in accordance with the *Environmental Protection Regulation 2008*.
- No unlawful disposal of wastes on or off-site.

Strategies / mitigation measures

<u>Waste Avoidance</u>

Waste avoidance relates to preventing the generation of waste or reducing the amount of waste generated. Reasonable and practicable measures for achieving waste avoidance may include, but are not necessarily limited to:

- Input substitution (using recyclable materials instead of disposable materials, for example using oil delivered in recyclable steel drums instead of non-recyclable plastic containers).
- Increased efficiency in the use of raw materials, energy, water or land (purchasing consumables in bulk (large containers) rather than in small quantities).
- Improved maintenance and operation of equipment (keep equipment in good working order to reduce wear and overhaul).
- Undertaking an assessment of waste minimisation opportunities from time to time.

<u>Waste Reuse</u>

Waste re-use refers to re-using waste, without first substantially changing its form. Reasonable and practicable measures for reusing waste may include, but are not necessarily limited to:

- Recovering and separating solvents, metals, oil, or components or contaminants and reusing separated solvents for degreasing plant and equipment.
- Applying waste processing fines to land in a way that gives agricultural and ecological benefits (using fine sediments in rehabilitation activities).
- Using overburden for constructing bunds and landforming.
- Reusing silt/sediment on-site to the maximum practicable extent.

Waste Recycling

Waste recycling refers to treating waste that is no longer useable in its present form and using it to produce new products. Reasonable and practicable measures may include, but are not necessarily limited to:

- Recovering oils, greases and lubricants for collection by a licensed oil recycling contractor, recovering, separating and recycling packaging (including paper, cardboard, steel and recyclable plastics).
- Recycling used plant and equipment to the maximum practicable extent.
- Finding alternatives to disposal of non-recyclable materials (using conveyor belts for noise attenuation, mudflaps, ute tray liners).
- Providing suitable receptacles and storage areas for collection of materials for recycling.

Energy Recovery from Waste

This refers to recovering and using energy generated from waste. Due to the scale of the operation, energy recovery is not considered viable.

Waste Disposal

This refers to disposing of waste which cannot otherwise be reused, recycled or used for energy recovery. Reasonable and practicable measures may include, but are not necessarily limited to:

- Regulated wastes must be transported and disposed of in accordance with the *Environmental Protection Regulation 2008.*
- Disposal to a licensed waste disposal facility (i.e. landfill or transfer station).
- Approved on-site disposal.

Waste Storage

Waste storage containers or areas to be provided and located at safe and convenient locations at the site. Each container will be identified with the type of wastes which may be disposed of in each container. Each container or area will be designed to prevent the escape of materials.

Regulated Waste and Trackable Waste

Regulated waste is commercial or industrial waste, whether or not it has been immobilised or treated and is of a type or contains a constituent of a type prescribed in the *Environmental Protection Regulation 2008*. In addition, the *Environmental Protection Regulation 2008* sets out substances which are trackable waste. All regulated wastes will be transported off-site by a licensed commercial transporter.

Regulated waste transport is an ERA if the load is non-commercial and exceeds 250 kg, of any quantity if the load is commercial. If any regulated waste transport occurs, it must be undertaken by a licenced commercial transporter.

Monitoring

The Quarry Manager will undertake a monthly visual inspection to ensure the waste management hierarchy is being effectively implemented. All site personnel shall be responsible for ensuring wastes are stored and removed from the site on a regular basis (e.g. daily or weekly). The Quarry Manager shall ensure that waste treatment measures are implemented at the site.

	The Quarry Manager shall ensure waste receptacles are provided and the waste type identified and that temporary waste storage areas are signed; recycling bins are emptied when full and materials which may cause land contamination are not disposed of on the site. The Quarry Manager shall keep a record of regulated waste generated at the site, treatment and disposal methods, approved contractors for transporting and disposing of waste and the location of the facility for accepting the waste.
Contingency Plan	Where a non-compliance is identified, a review of the WMP will be undertaken to determine areas for improvement. Where necessary, additional staff training on waste management procedures and waste handling will be undertaken. Where the operator becomes aware that regulated waste has been inappropriately disposed of, the incident must be notified to the administering authority in accordance with **Section 2.4 – Incidents and Complaints Procedure**.

3.8 Fauna and Flora Management Plan

Objective	The activity is operated in a way that protects the environmental values of land including soils, subsoils, landforms and associated flora and fauna.
Purpose	This Fauna and Flora Management Plan has been prepared to mitigate potential impacts of the site activity on protected flora and fauna.
Performance Targets	• Avoid impacts to protected flora and fauna. • Ensure no vegetation is disturbed outside of the approved operational area. • Prevent the degradation of non-operational areas. • Prevent introduction of weed species onto site.

Strategies / mitigation measures	**Fauna Management**
	• A qualified fauna spotter/catcher must be present prior to, and during, all clearing activities to actively search all habitat for wildlife and to ensure that clearing methods are appropriate.
	• Clearing of vegetation will be undertaken in a manner to allow fauna to move away, unhindered, from the disturbance area
	• Work areas are to be checked regularly for fauna that may have entered the work area or become trapped.
	• Clearing is to be avoided in breeding and nesting seasons where possible.
	• If fauna must be relocated, a fauna spotter catcher who holds a rehabilitation permit must be engaged as they are the only person allowed to handle, capture and or relocate fauna.
	• Management of work areas should seek to avoid attracting fauna by ensuring areas are cleared of potential food sources.
	• All vehicles and plant will adhere to designated tracks/roads to avoid unnecessary habitat impacts and will adhere to site rules relating to speed limits to minimise potential for road kill.
	• All vehicles and plant associated with the site operation must adhere to site rules relating to speed limits to minimise the potential for road kill.
	• The Quarry Manager is to be notified immediately of any incident resulting in the potential or actual harm, injury or death of any fauna species.
	
	Flora Management
	• Pre-clearing surveys are to be undertaken by suitably qualified persons to ensure no protected species are located within the area proposed to be cleared.
	• Any areas to be cleared are to be demarcated and all personnel carrying out the activity are to be made aware of the clearing limitations.
	• Clearing must be limited to the minimum required to facilitate extraction.
	• A Protected Plant Clearing Permit under the *Nature Conservation Act 1992* (NCA) must be obtained by the operator should any person become aware that:
	  ○ there are plants that are endangered, vulnerable or near threatened wildlife within the area to be cleared
	  ○ the plants would be taken by the clearing or there would be clearing within 100m of the plants.
	
	Weed Management
	• Site operations are to abide by the General Biosecurity Obligation as detailed in Section 23 of the *Biosecurity Act 2014*, which are:
	  ○ *to prevent or minimise adverse effects on a biosecurity consideration of the person's dealing with the biosecurity matter or carrier or carrying out the activity; and*
	  ○ *to minimise the likelihood of causing a biosecurity event, or to limit the consequences of a biosecurity event caused, by dealing with the biosecurity matter or carrier or carrying out the activity; and*

	○ *not to do or omit to do something if the person knows or ought reasonably to know that doing or omitting to do the thing may exacerbate the adverse effects, or potential adverse effects, of the biosecurity matter, carrier or activity on a biosecurity consideration* • A pre-construction weed audit is to be undertaken. If weeds are identified, weed control is to be undertaken in the surrounding area to minimise any contamination of material that is to be transported off-site. • Weed control measures are to follow best practice and any chemicals proposed to be used must be accompanied by the relevant SDS. All persons using such chemicals are to be made aware of the requirements of the SDS and instructions for the use of the chemical are to be adhered to in order to prevent adverse impacts. • Routine inspections are to be carried out for restricted matters such as declared plants / listed weeds, feral cat and pig, rabbit, red fox and other potential pests within the quarry area. • Weed hygiene declaration forms are to accompany plant and machinery being brought to site. • Weed infestations are to be controlled as soon as possible to prevent further spread of weeds. • Maintain groundcover for as long as possible by minimising land disturbance at any one time, where practicable. • Weeds identified on-site will be prioritised for weed management according to the class of weeds identified, and the cause of the weed establishment will be determined to prevent or minimise further introduction and spread. • Weed plant materials and seed should be disposed of at a Council refuse station, or buried at an appropriate depth on-site, whenever possible. • Employees should be trained appropriately to recognise existing and potential weeds present on-site and within the surrounding area to ensure they are not inadvertently brought onto the Site via items contaminated by seed (e.g. vehicles, machinery, hand tools, soil, mulch or livestock). • If areas containing weeds are encountered, clean all equipment, vehicles and machinery prior to leaving the area. • All access routes and hard stand areas will be maintained in a weed-free or weed-reduced state to lessen the spread of weed seed by vehicle movements. • Established roads and tracks should be used wherever possible and weed-infested areas / sites are to be avoided. • Implement progressive rehabilitation as soon as practical as areas become available. • Avoid importing topsoil onto the site where possible. • Prior to the establishment of vegetation: ○ a spraying campaign may be required to prevent migration or establishment of weed species into the area under rehabilitation ○ alternative methods for controlling both grasses and weeds may be used, including manual weeding, burning, slashing, weed matting and mulching, where practicable. • Alternative methods for controlling both grass and weeds may include; manual weeding, slashing, weed matting and mulching. Techniques best suited to the specific species of weeds being targeted for control shall be determined by consulting with the Department of Agriculture and Fisheries (DAF) (or subsequent) weed control data.
Monitoring	**Fauna and Flora** • The Quarry Manager is to inspect extraction and clearing limit demarcations to ensure that they are in sound condition and clearing visible. • Operational areas are to be inspected daily prior to commencement of work to determine if fauna is present. Where fauna is present, they are to be relocated or moved on as appropriate. **Weed and Pest Control** All employees on-site shall carry out general daily visual surveillance for weeds within the Site and ensure that vehicles leaving Site are free of soil and vegetation.

	The Quarry Manager shall:
	• conduct weekly inspections of all access routes on-site to ensure they are maintained weed free or in a reduced state to lessen the spread of weed seed by vehicle movements.
	• conduct inspections of any area/s and treat any weed infestations prior to topsoil removal.
	• carry out at least four (4) thorough inspections per year of the Site to identify:
	  ○ effectiveness of weed control measures implemented and whether an amendment is required
	  ○ new areas where weed control is required
	  ○ infestations of new weed species
	  ○ areas where rehabilitation should be carried out
	
	Note: The frequency of site inspections will vary depending on the identified weed species on-site and what management requirements are necessary for those species.

Contingency	Incidents involving fauna and flora impacts are to be reported as an incident in accordance with **Section 2.4 – Incidents and Complaints Procedure** of this EMP and actions to resolve the impact are to be determined in consultation with the administering authority.

3.9 Rehabilitation Management Plan

Objective

The activity is operated in a way that protects the environmental values of land including soils, subsoils, landforms and associated flora and fauna.

Purpose

This Rehabilitation Management Plan has been prepared to assist with site rehabilitation.

Performance Outcomes

- Limit land disturbance to that which is necessary at any one time.
- Identify any land contamination and implement appropriate remediation or management where necessary.
- Land that has been disturbed for activities must be rehabilitated in a manner such that
  1. suitable native species of vegetation for the location are established and sustained for earthen surfaces
  2. potential for erosion is minimised
  3. the quality of water released from the site, including seepage, does not cause environmental harm
  4. potential for environmental nuisance caused by dust is minimised
  5. the water quality of any residual water body does not have potential to cause environmental harm
  6. the final landform is stable and protects public safety.
- Rehabilitation of disturbed areas must take place progressively as works are staged and new extraction areas are commenced.

Strategies

Final Landform and Final Land Use Description

Progressive rehabilitation is to be carried out as areas become available.

The final landform of the site is to demonstrate consideration for the surrounding undisturbed areas. The final landform is likely to include a gently sloping final floor, surrounded by a series of stepped benches. Terminal benches shall be battered to varying slopes depending on the geotechnical properties of the substrate, refer to **Figure 5 – Batter Treatments**.

The operator is to obtain a landowner's agreement at cessation of the rehabilitation to confirm the landowner's satisfaction with the rehabilitation site.

General Rehabilitation Treatments

The following measures are to be implemented for rehabilitation activities at the site:

- Using earthmoving equipment to progressively shape and trim disturbed areas.
- Designing landform and drainage to control erosion for the particular hydrological regime, ensuring the hydrological regime that existed prior to the development of the site is reinstated.
- Slope angles of catchments should be designed to avoid long, straight edges and steep angles (e.g. slope angles ≤20 degrees with the exception of non-erosive rock) (Minerals Council of Australia 1993, p. 17)
- Providing access to the rehabilitated areas to allow ongoing maintenance.
- Undertaking appropriate weed control to prevent rehabilitated areas from being overrun with weed species.

Land Contamination

Where potential land contamination has occurred, engaging a suitably qualified person to undertake a site investigation to determine the extent of contamination and any remediation requirements.

Water Quality

The operator is to engage a suitably qualified person to assess water quality of any residual water bodies at the site to ensure that the water quality achieves the objectives of the *Environmental Protection (Water)*

Policy, or other agreed local water quality objectives or release parameters specified by the EA conditions.

Topsoil and Subsoil Management

The following measures should be implemented for topsoil and subsoil stripping:

- Materials should not be stripped when it is too wet or too dry.
- When stripped, materials should be used directly for rehabilitation to the maximum practicable extent or stockpiled and preserved for future use.
- Stockpiling of materials should not exceed a height of 2 to 3 m and should be shaped and revegetated to protect the soil from erosion and weed infestation.
- Stockpiles should be maintained in a free draining condition and long-term soil saturation should be avoided.
- Runoff waters external to the areas to be stripped should be diverted away from the working area.
- Stripping of topsoil should be limited to the minimum area necessary.

The following measures should be implemented for topsoil and subsoil spreading:

- Whenever possible, stripped materials should be directly placed on an area undergoing rehabilitation.
- Areas to be re-spread should be shaped prior to placing materials over the re-profiled surface.
- Re-spreading soil materials on benches to achieve angles of no greater than 18 degrees (3(V):1(H)) to enable mechanical spreading and topsoil adhesion (Minerals Council of Australia 1998).
- Equipment used to spread materials should be scheduled to avoid compaction.
- Before respreading the materials, loosen the underlying substrate to break up any compacted or surface sealing and to enable keying of the two (2) materials.
- On slopes less than 3(H):1(V), loosen lightly compacted substrate, ensuring all ripping operations occur along the contour.
- Materials are to be removed from stockpiles in a manner that avoids vehicles travelling over the stockpiles.
- Materials are to be respread in the reverse sequence to its removal so that the original upper soil layer is returned to the surface to re-establish the entrapped seed content of the soil.
- Ensure all exposed substrates are covered with a minimum 150 mm of suitable topsoil / subsoil to enable success of revegetation.
- After spreading materials, ensure the surface is left in a roughened state to assist moisture infiltration and inhibit soil erosion.
- Prior to any revegetation, cultivate any compacted topsoil surfaces (to a depth no greater than the depth of the materials to be spread).
- Spreading is to be immediately followed by revegetating wherever possible.
- If erosion occurs on treated surfaces, the area is to be re-spread with additional materials and revegetated.

Species Selection

Species used for revegetation are to align with the pre-development species. The site has been extensively cleared prior to the establishment of the quarrying activity for agricultural purposes. Species used on bench rehabilitation may be generally in accordance with the Regional Ecosystem (RE) species mapped as present within and/or adjacent to the site, which include:

- RE 11.12.6b – *Corymbia citriodora* open forest on igneous rocks (granite).
- RE 11.9.9 - *Eucalyptus crebra* woodland on fine-grained sedimentary rocks.

Vegetation established on the floor of the quarry and on relatively flat areas should be suitable for the post-development land use (e.g. native pasture species for grazing purposes).

	The method of revegetation can be tailored to the site. Examples of revegetation that may be used include; natural regeneration, hydro-mulching, seed broadcasting, tube stock / seedling planting and/or direct seeding.
Key Performance Indicators	The following Key Performance Indicators (KPIs) provided in **Table 5 – Key Performance Indicators for Rehabilitation** have been established to provide quantifiable measures of performance for achieving the rehabilitation completion criteria. Each of the KPIs are assigned for completion; however, should the operator require assistance to measure the achievement of these KPIs, they are to engage a suitably qualified person.
Monitoring	The operator must undertake a monitoring and maintenance period following the rehabilitation phase and action any remedial measures to ensure the rehabilitated landform transition to a self-sustaining state. The Quarry Manager shall conduct regular inspections of any rehabilitated areas to ensure timely maintenance works are carried out as necessary. Maintenance works may include fertilising, watering, repairs to barriers, guards and plant failure replacements, refer to **Table 6 – Maintenance Schedule for Revegetation Works**. The monitoring and management program will review the ongoing success of the rehabilitation treatment. The Quarry Manager may engage a consultant to assist with any detailed monitoring or management of rehabilitation. Final rehabilitated areas are to be visually monitored by the Quarry Manager and, where relevant, assessed by suitably qualified persons to determine the effectiveness of measures implemented.
Contingency Plan	In the event of any impacts to environmentally sensitive receptors, the incident is to be recorded in accordance with **Section 2.4 – Incidents and Complaints Procedure**, and the corrective action to be undertaken is to be identified in consultation with the administering authority. In the event that monitoring identifies failures in the rehabilitation implementation, the following contingency measures may be used, however; these will be adapted to the particular failure identified: • Replacement of failed plantings to increase establishment / success rates. • Use of fertilisers and soil ameliorants where necessary. • Reprofiling or eroded or failed landforms. • Application of additional topsoil where necessary to support vegetation growth. • Impletion of additional erosion and sediment controls. • Water quality improvements where necessary.

Table 5 – Key Performance Indicators for Rehabilitation

KPI Description	Measure(s)	Critical Timeframe
Total land disturbance at any one time is limited to that necessary to advance the forecast 12 months of quarry development.	Area measurement and demarcation of limits.	Continuous review in accordance with development of the site.
Sufficient topsoil for rehabilitation has been retained.	Volume (m^3) of topsoil and subsoil retained for rehabilitation.	At implementation and completion of each development stage.
The final landform demonstrates consideration for the surrounding undisturbed areas.	True / False.	Prior to lodgement of application for surrender.
Suitable species are utilised in site revegetation in accordance with the pre-development species.	Species are in accordance with the Queensland Government, regional ecosystem descriptions and/or species in	Prior to commencement of rehabilitation activities.

KPI Description	Measure(s)	Critical Timeframe
	place prior to commencement of the quarry development (e.g. native pasture species).	
Erosion rates of soil / sediment from disturbed areas associated with the extractive industry activities does not exceed natural rates experience for the locality.	Local erosion rate calculated and compared against actual site erosion rates.	Within three (3) months of completion of each stage of the quarry (including at final stage).
Evidence that the water quality of any residual water bodies complies with the water quality objectives of the EPP (Water) or other agreed release parameters.	Water Quality Objectives of EPP, EA conditions or other Water Quality Objectives as agreed with the administering authority.	Prior to lodgement of a surrender application for the EA.
Air quality of the final landform achieves levels consistent with adjacent undisturbed areas through establishment of the final landform.	Visual surveillance and complaints register review. If monitoring is required, refer to **Section 3.1 - Air Quality Management Plan** contained in this EMP.	Prior to lodgement of a surrender application for the EA.
Review of geotechnical stability confirms that the site is stable and not subject to slumping.	Geotechnical assessment.	Prior to lodgement of a surrender application for the EA.
Assessment confirms the slope stability of final landforms.	Slope ratio, degree or percentage.	Prior to lodgement of application for surrender.
Landowner statement(s) obtained: a) for any retained items of extractive industry-related infrastructure b) to declare the level of satisfaction with the rehabilitated final landform.	True / False.	Prior to lodgement of application for surrender.

Table 6 – Maintenance Schedule for Revegetation Works

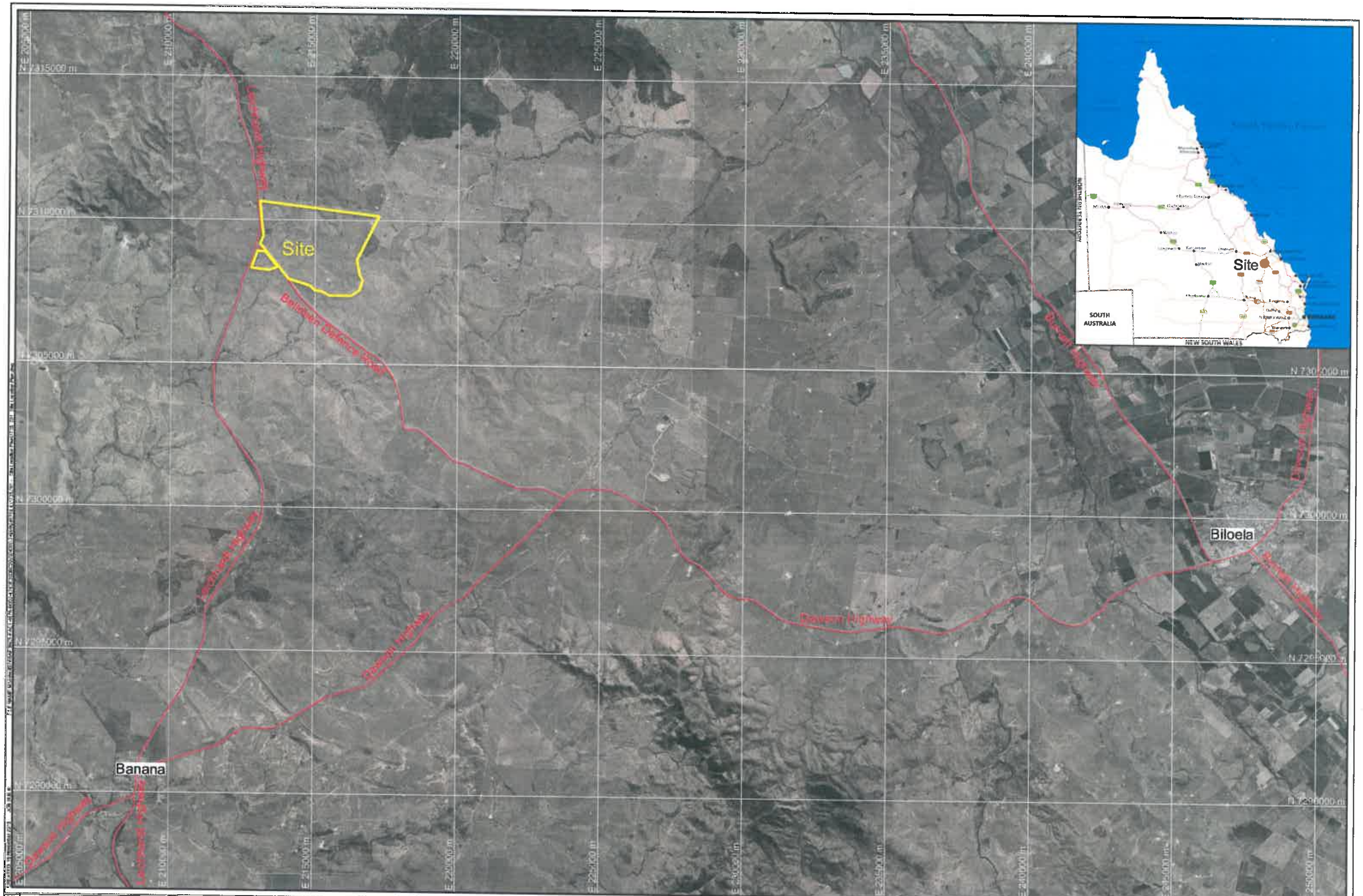
Item	Activity	Frequency
Weed Control		
Site Preparation (where necessary)	Application of herbicide and / or slashing	One (1) treatment at least two (2) weeks prior to seeding / planting
Ongoing Weed Management	Application of herbicide	Suggested biannually or as required
Supplementary Weeding	Application of herbicide	As required
Revegetation Management	Monitor performance and conduct any necessary maintenance	• One (1) month after seeding / seedling planting • Three (3) months after seeding / seedling planting • Six (6) months after seeding / seedling planting • 12 months after seeding / seedling planting
	Replace diseased or dead plants	OR • following significant rainfall events (e.g. >25 mm)
	Fertilise (if applicable)	As necessary following maintenance inspections
	Apply mulch (if available)	Two (2) months after topsoil spreading or seeding
		One-off around tube stock plantings
Pasture Management		
Grass Height	Slashing	Biannually until established
Grass Vigour	Fertilise	Annually (if necessary)

Reference List

DES. (Department of Environment and Sciences). 2017. *Model operating conditions ERA 16—Extractive and screening activities.* Accessed on March 6, 2018. https://www.ehp.qld.gov.au/assets/documents/regulation/pr-co-extraction-and-screening.pdf

Minerals Council of Australia. (1998). *Mine Rehabilitation Handbook.* 2nd ed. Dickson: Minerals Council of Australia.

figures

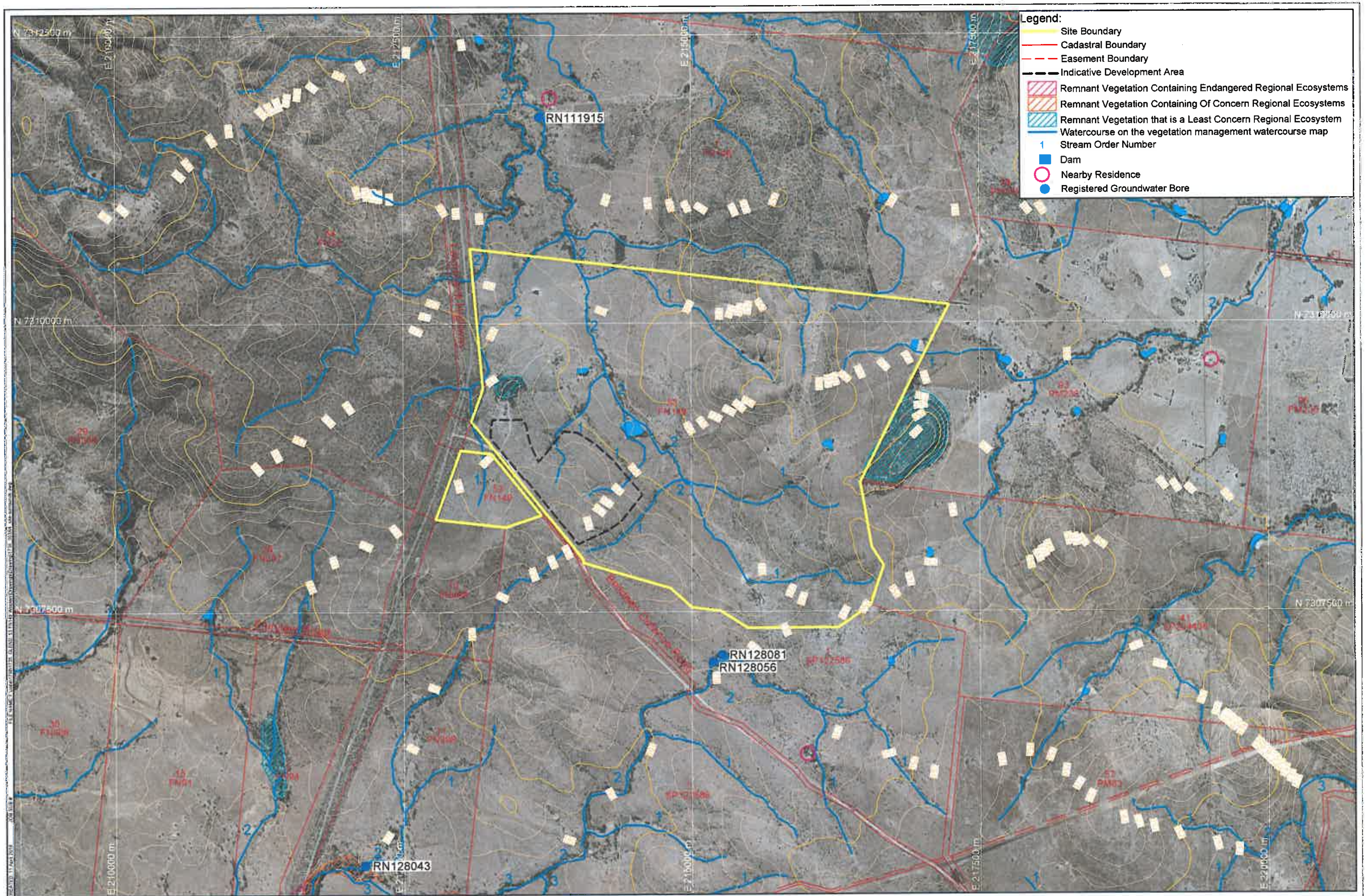


Legend:
- Site Boundary
- Road / Highway

REV	DESCRIPTION	DATE	BY
1			LV

Photography: Google Earth, image date: 2013-04-10

PROJECT: Sarlou Quarry	TITLE: Figure 1 - Site Location Plan		
CLIENT: Sarlou Quarry Pty Ltd	GROUNDWORK plus, PH: +61 7 3871 0411, WWW.GROUNDWORK.COM.AU	SCALE: 1:120,000 (When Printed On A3), 0–2.4km	DRAWING NUMBER: 1735.001, REVISION: 1
		DATE: 16 November 2015; PRINTED: 16 November 2015; DRAWN: LT; CHECKED: JL	DATUM: HORIZONTAL / VERTICAL / ZONE: MGA / AHD / 56


Legend:
Site Boundary
Cadastral Boundary
Easement Boundary
Indicative Development Area
Remnant Vegetation Containing Endangered Regional Ecosystems
Remnant Vegetation Containing Of Concern Regional Ecosystems
Remnant Vegetation that is a Least Concern Regional Ecosystem
Watercourse on the vegetation management watercourse map
Stream Order Number
Dam
Nearby Residence
Registered Groundwater Bore
RN111915
RN128081
RN128056
RN128043
N 7312500 m
N 7310000 m
N 7307500 m
E 210000 m
E 212500 m
E 215000 m
E 217500 m
E 220000 m

PROJECT: Sarlou Quarry

CLIENT: Sarlou Quarry Pty Ltd

TITLE: Figure 2 - Site and Surrounds

GROUNDWORK plus
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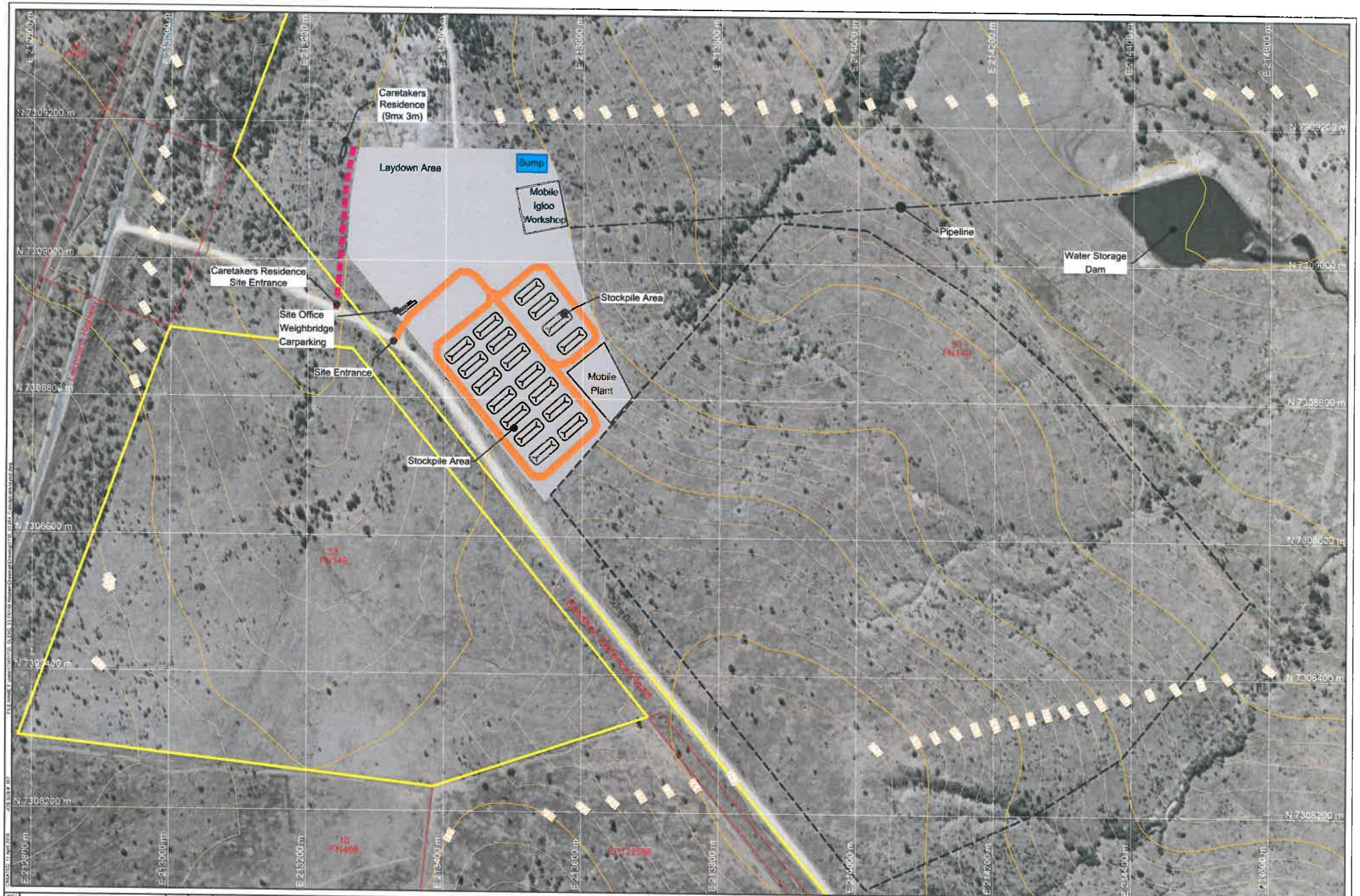
SCALE: 1:30,000 When Printed On A3

DATE: 11 April 2018 | DRAWN: MR
PRINTED: 11 April 2018 | CHECKED: SL

DRAWING NUMBER: 1735.003 | REVISION: 4

DATUM: HORIZONTAL / VERTICAL / ZONE: MGA / AHD / 56



Legend:
- Site Boundary
- Cadastral Boundary
- Easement Boundary
- Indicative Quarry Area
- Site Access
- Access to Caretakers Residence

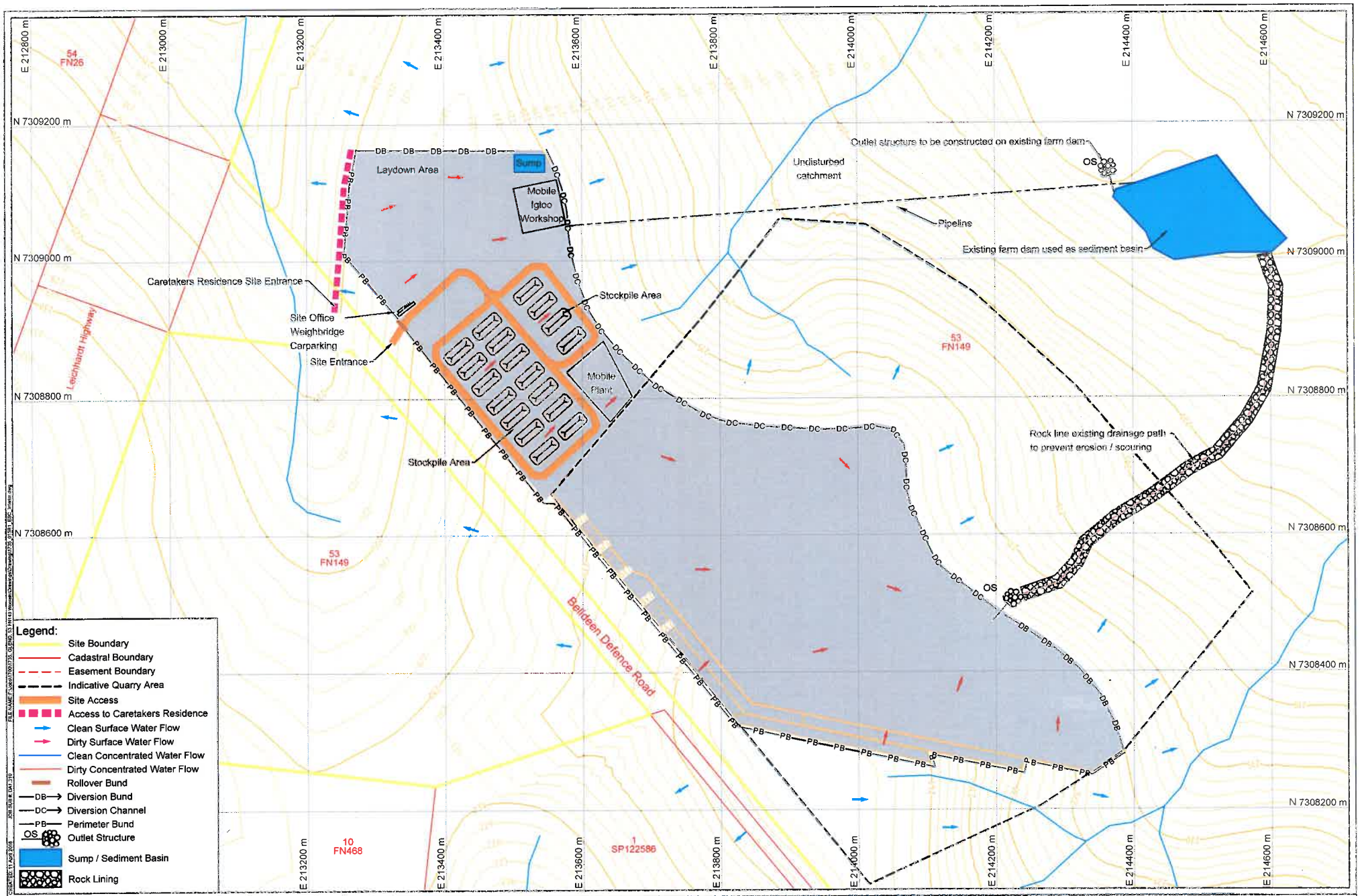
PROJECT: Sarlou Quarry

CLIENT: Sarlou Quarry Pty Ltd

TITLE: Figure 3 - Quarry Conceptual Site Layout Plan
Note: Aerial photograph is not orthorectified

GROUNDWORK plus
PH: +61 7 3871 0411
WWW.GROUNDWORK.COM.AU

SCALE: 1:5,000 When Printed On A3	0 — 100	DRAWING NUMBER: 1735.013	REVISION: 4
DATE: 11 April 2018	DRAWN: MR	DATUM: HORIZONTAL / VERTICAL / ZONE	
PRINTED: 11 April 2018	CHECKED: SL	MGA / AHD / 56	



REV	DESCRIPTION	DATE	BY
1	Caretakers Access Road revised	11/04/18	MR

Data Sources:
Photography: Google, Image date: 2014-05-25
Topography: Main Roads(c), © The State of Queensland (DNRM) 2013
Cadastre:
Ecosystem:
Other:

PROJECT: Sarlou Quarry

CLIENT: Sarlou Quarry Pty Ltd

TITLE: Figure 4 - Conceptual Interim Stormwater Erosion and Sediment Control Plan

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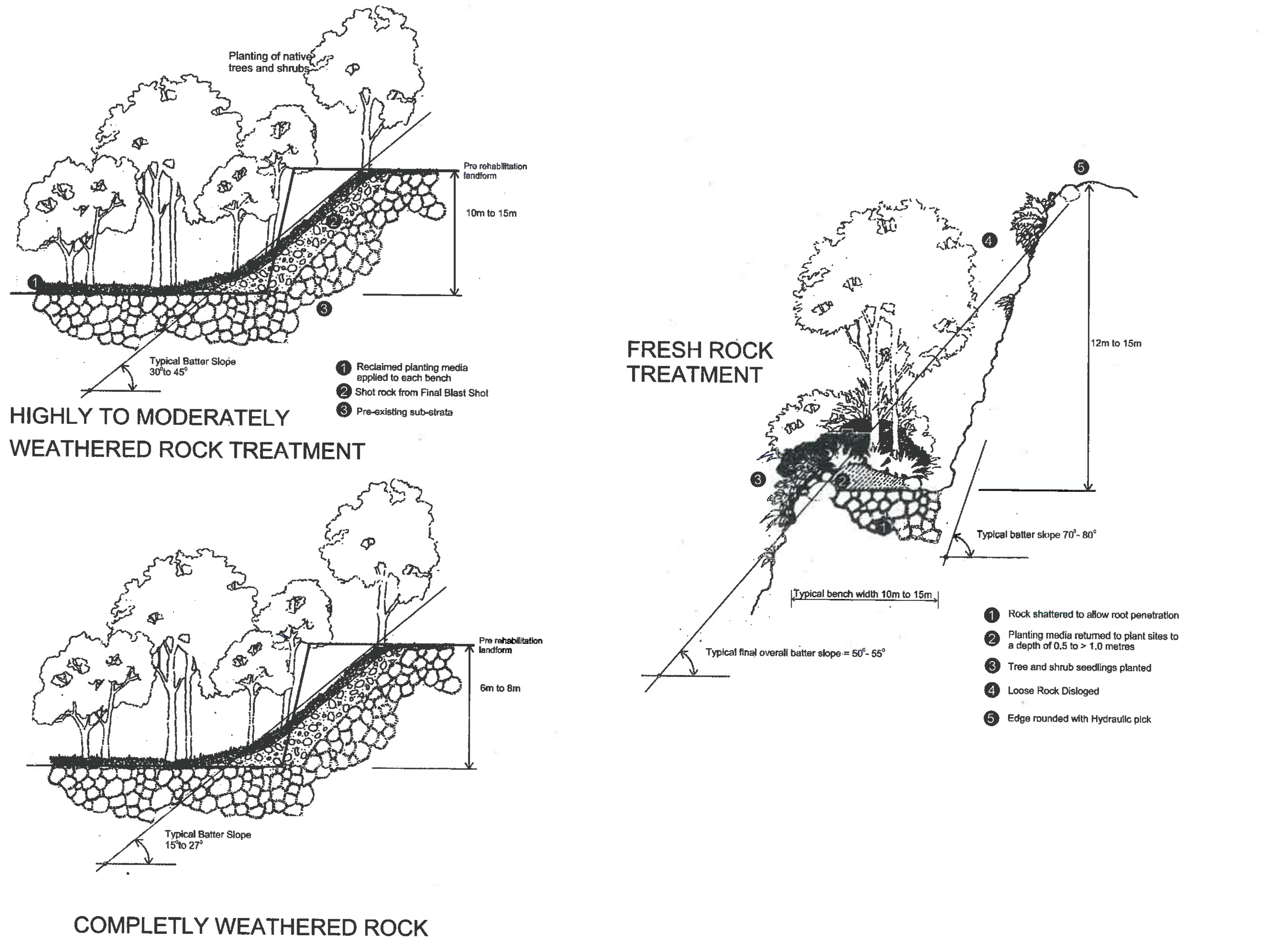
SCALE: 1:5,000 (When Printed On A3) 0 100
DRAWING NUMBER: 1735.015A
REVISION: 1
DATE: 11 April 2018
DRAWN: MR
PRINTED: 11 April 2018
CHECKED:
DATUM: HORIZONTAL / VERTICAL / ZONE
MGA / AHD / 56



REV	DESCRIPTION	DATE	BY

Data Sources: Photography: Topography: Cadastre: Ecosystem: Other:

PROJECT: Sarlou Quarry

CLIENT: Sarlou Quarry Pty Ltd

TITLE: Figure 5 - Batter Treatments

GROUNDWORK plus
PH: +61 7 3871 0411
WWW.GROUNDWORK.COM.AU

DATE: 27 June 2016 DRAWN: LT
PRINTED: 13 July 2016 CHECKED: JL

DRAWING NUMBER: 1735.018A REVISION:

DATUM: HORIZONTAL / VERTICAL / ZONE

attachments

Attachment 1

Spill Response Protocol

Spill Response Protocol

Hydrocarbons and Chemicals

GROUNDWORK plus

P: +61 7 3871 0411 F: +61 7 3367 3317 www.groundwork.com.au

1.0 Purpose

Obligations for management of contaminants that may result in environmental harm are prescribed under the *Environmental Protection Act 1994* (EP Act). All necessary preventative measures must be implemented at the operations to prevent or minimise the potential for spills, however if a spill does occur it should be contained, removed and disposed of properly.

This Spill Response Protocol provides and the steps outlined in **Section 2.0 - Spill Response Procedure** provides general guidance for incidental spills of hydrocarbons and chemicals at the activity.

2.0 Roles and Responsibilities

General Manager / Site Manager	• Provide resources and continuous training for the management of spills at the site. • Ensure all personnel at the site are aware of the requirements of the Spill Response Protocol. • Undertake risk assessments for any spill incident that occurs. • Liaise with third parties and government agencies in relation to spills. • Complete necessary reporting of spills when required.
Personnel	• Be familiar with, and adhere to, the requirements of this Spill Response Protocol. • Implement good practice and management strategies at the site to ensure spills are prevented. • Notify all spills to the Site Manager.

3.0 Spill Response Procedure

Upon becoming aware of the spill, the Site Manager is to be notified immediately.

Undertake an immediate initial assessment to identify the following:

- Type and volume of the spilled substance.
- Source of the spill and whether it can be isolated.
- Safety and Personal Protection Equipment (PPE) requirements for the substance as outlined in the Materials Safety Data Sheets (MSDS).
- Whether site personnel can contain and manage the spill, or whether third party and emergency services are required.
- The substrate of the spill surface (e.g. soil, concrete hardstand).

Spills within a waterbody or watercourse pose a higher risk of potential environmental harm and may require additional assistance from third parties / government agencies. The administering authority must be notified and professional assistance sought regarding clean-up operations.

Isolate the Spill

All personnel working in the immediate vicinity of the spill should be notified and all work in that area should cease immediately.

The movement of plant/equipment has the potential to spread the spill and contaminate other areas, therefore avoid moving plant/equipment where possible.

Contain

If possible, the spill is to be contained by constructing a temporary bund and absorbing the spill with the spill kits provided, or an alternative absorbent material (e.g. clay, rags).

DO NOT USE WATER OR OTHER LIQUIDS TO WASH THE SPILL AREA

Remove / Clean-up

Major spills may require additional and / or specialist treatment, which will be determined by the Site Manager. The following general spill removal / clean-up methods may be used:

- Remove the spill by shovels and / or earthmoving equipment.
- Repair equipment at spill location if possible if mobile plant/equipment is the source of the spill.
- Where necessary or possible to do so, move plant and equipment to allow the removal of the spill.
- Contaminated soils / materials are to be disposed off-site by an approved regulated waste transport contractor in accordance with the legislated regulated waste requirements to a lawful disposal facility.
- Under no circumstances should materials containing the contaminant be disposed of on-site.

Report

All spills of hydrocarbons and/or chemicals are to be reported to the Site Manager, who in turn will undertake a risk assessment of the spill to determine if there is potential for environment harm to occur.

If the risk assessment determines a high or extreme level of risk of environmental harm is posed, the incident must be reported to the Pollution Hotline on 1300 130 372 within 24 hours of becoming aware of the incident. Refer to the ***Incident and Complaint Procedure*** for further information in relation to reporting.

4.0 Risk Assessment

The following provides the risk assessment framework that may be adopted by the Site Manager to undertake a qualitative risk-based assessment, based on the likelihood of an environmental harm occurring (**Table 1 – Definitions of Likelihood**), and the consequences of the occurrence on the surrounding environment (**Table 2 – Definitions of Consequence**). The likelihood and consequences are scored between 1 and 5 for each potential impact or event. The risk assessment has been formulated considering potential for impact without control measures put in place to manage potential risk.

Table 1 – Definitions of Likelihood

Rating	Descriptor	Score
Rare	May occur only in exceptional circumstances	1
Unlikely	Could occur but doubtful	2
Possible	Might occur at some time in the future	3
Likely	Will probably occur	4
Almost Certain	Is expected to occur in most circumstances	5

Table 2 – Definitions of Consequence

Rating	Descriptor	Score
Negligible	Impacts not requiring any treatment or management action	1
Minor	Nuisance or insignificant environmental harm requiring minor management action	2
Moderate	Serious environmental impacts, readily manageable at low cost	3
Major	Substantial environmental impacts, manageable but at considerable cost and some disruption	4
Catastrophic	Severe environmental impacts with major consequent disruption and heavy cost	5

The consequence and likelihood scores are then plotted on the risk assessment matrix (**Table 3 – Risk Assessment Matrix)** and the final risk level assigned is a product of the likelihood and consequence scores. The higher the risk score, the higher the priority is for management.

Table 3 – Risk Assessment Matrix

Likelihood		Consequence				
		Negligible	**Minor**	**Moderate**	**Major**	**Catastrophic**
		1	**2**	**3**	**4**	**5**
Almost Certain	**5**	5 Medium	10 High	15 High	20 Extreme	25 Extreme
Likely	**4**	4 Low	8 Medium	12 High	16 High	20 Extreme
Possible	**3**	3 Low	6 Medium	9 Medium	12 High	15 High
Unlikely	**2**	2 Low	4 Low	6 Medium	8 Medium	10 High
Rare	**1**	1 Low	2 Low	3 Low	4 Low	5 Medium